

COOKING APPLIANCE, CONTROL METHOD THEREFOR, CONTROL DEVICE THEREOF, AND COMPUTER READABLE STORAGE MEDIUM

[0001] This application claims priority to Chinese Patent Application No. 202010060262.2
5 filed with China National Intellectual Property Administration on January 19, 2020 and entitled
“COOKING APPLIANCE, CONTROL METHOD THEREFOR, CONTROL DEVICE
THEREOF, AND COMPUTER READABLE STORAGE MEDIUM”, and claims priority to
Chinese Patent Application No. 202010064523.8 filed with China National Intellectual Property
Administration on January 20, 2020 and entitled “COOKING APPLIANCE, CONTROL
10 METHOD THEREFOR, CONTROL DEVICE THEREOF, AND COMPUTER READABLE
STORAGE MEDIUM”, which are incorporated herein by reference in their entirety.

FIELD

[0002] The present application relates to the technical field of cooking, and more particularly,
15 to a cooking appliance, a control method of a cooking appliance, a control device of a cooking
appliance, and a computer readable storage medium.

BACKGROUND

[0003] At present, some areas in China have a habit of eating “drained rice”, which is cooked
20 by boiling rice in a pot for a period of time and then steaming the drained rice on a material
container. The method can realize an object of low-sugar rice. As a common cooking appliance,
an electric rice cooker has the function of cooking low-sugar rice.

[0004] However, the current electric rice cooker can only manually soak the rice grains, and
then filter out the sugar content in the rice grains, so the process is not easy to control, and it
25 cannot ensure that the drained rice can meet the user’s sugar content requirements.

[0005] Also, in the related art, in cooking the drained rice using a cooking appliance, rice
grains are mostly separated from rice soup and boiled rice soup is washed with rice grains by
heating. This method has great randomness to the washing time of rice grains, and it is difficult
to ensure the cooking effect.

SUMMARY

[0006] The present application is intended to solve at least one of the technical problems existing in the prior art or related art.

5 **[0007]** To this end, a first aspect of the present application provides a cooking appliance.

[0008] A second aspect of the present application provides a control method of a cooking appliance.

[0009] A third aspect of the present application provides a control device of a cooking appliance.

10 **[0010]** A fourth aspect of the present application provides a cooking appliance comprising the control device of the above cooking appliance.

[0011] A fifth aspect of the present application provides a computer readable storage medium.

[0012] A sixth aspect of the present application provides another control method of a cooking appliance.

15 **[0013]** A seventh aspect of the present application provides yet another control method of a cooking appliance.

[0014] An eighth aspect of the present application provides another control device of a cooking appliance.

20 **[0015]** A ninth aspect of the present application provides a control device of a cooking appliance.

[0016] A tenth aspect of the present application provides another cooking appliance comprising the control device of the above cooking appliance.

[0017] An eleventh aspect of the present application provides yet another cooking appliance comprising the control device of the above cooking appliance.

25 **[0018]** A twelfth aspect of the present application provides another computer readable storage medium.

[0019] In view of this, the embodiment of the first aspect of the present application provides a cooking appliance comprising: a cooking pot; a material container, wherein the material container is at least partially accommodated in the cooking pot, a first cavity is formed in the material container, and a second cavity is formed between the cooking pot and the material container, a liquid communicating structure is formed between the first cavity and the second cavity, and the liquid communicating structure communicates the first cavity and the second cavity; a pressure device, configured to generate a pressure difference between the first cavity and the second cavity; a pressure relief structure, being provided with a gas passage connected to at least one of the first cavity and the second cavity, and reducing a pressure difference between the first cavity and the second cavity when the gas passage is open.

[0020] The cooking appliance provided in the present application comprises a cooking pot, a material container, a pressure device and a pressure relief structure. The material container is at least partially accommodated in the cooking pot, and a first cavity is formed in the material container, and a second cavity is formed between the cooking pot and the material container, wherein the first cavity can be used for placing food to be cooked, and the second cavity can be used for storing liquid; a liquid communicating structure is formed between the first cavity and the second cavity, and the liquid communicating structure communicates the first cavity and the second cavity, i.e., ensuring that the liquid in the second cavity (the first cavity) can enter into the first cavity (the second cavity) through the liquid communicating structure to form a liquid communicating relationship; the pressure device works to generate a pressure difference between the first cavity and the second cavity, and when the pressure difference between the first cavity and the second cavity reaches a certain degree, the liquid in the second cavity enters into the first cavity under the effect of the pressure, and then fully contacts the food to be cooked in the first cavity; the pressure relief structure comprises a gas passage, and the gas passage is connected to at least one of the first cavity and the second cavity; when the food to be cooked has been sufficiently contacted with the liquid, a pressure difference between the first cavity and the second cavity is reduced or disappeared via the gas passage so that the liquid in the first cavity flows out through the liquid communicating structure so that the food to be cooked in the first cavity is separated from the liquid; and through such a soaking and liquid discharge process, washing of the food to be cooked in the first cavity can be achieved, for example, starch

substances on the food to be cooked can be drained out with the liquid to achieve drained rice cooking function and obtain good low-sugar cooking effect.

[0021] It should be noted that the use of the pressure device and the pressure relief structure, especially through the gas passage of the pressure relief structure, the user can select whether the first cavity is in contact with the liquid or not according to actual situations, and can select the specific time point, number and washing time length of the liquid on the food to be cooked in the first cavity, so as to improve the working flexibility of the cooking appliance and improve the cooking taste.

[0022] In addition, the cooking appliance of the above embodiment provided by the present application may further have the following additional technical features.

[0023] In the above embodiment, further, the gas passage is in communication with the environment; wherein when the gas passage is communicated, the first cavity or the second cavity connected to the gas passage communicates with the environment.

[0024] In this embodiment, the gas passage is in communication with the environment, and the gas passage is in communication with the first cavity or the second cavity. That is to say, when the gas passage is in a communicating state, one end of the gas passage is in communication with the external atmospheric pressure, and the other end of the gas passage is in communication with the first cavity or the second cavity and with the environment, i.e., both the first cavity and the second cavity are in direct communication with the external environment, ensuring that the gas pressure values in the first cavity and the second cavity are the same as the external environment, ensuring that the pressure difference between the first cavity and the second cavity is reduced, and ending the washing of the food to be cooked.

[0025] In addition, by using a gas passage to communicate the environment and the first cavity or the second cavity so as to release pressure from the first cavity or the second cavity, not only converting and adjusting the first cavity or the second cavity between a negative pressure (or a positive pressure) and a zero pressure (which can be specifically understood as an ambient atmospheric pressure) so as to repeatedly wash materials, compared with the way of using a gas suction device and a gas blowing device to control the first cavity or the second cavity to convert and adjust between a negative pressure and a positive pressure, the structure is simpler, the

component cost is reduced, and the product control logic is correspondingly evolved, the product control efficiency is higher, the fault risk is lower, and power is also saved, it is more conducive to energy saving and emission reduction of products.

5 **[0026]** In any of the above embodiments, further, a gas passage is respectively connected to the first cavity and the second cavity, and when the gas passage is open, the gas passage communicates the first cavity and the second cavity.

10 **[0027]** In this embodiment, the gas passage is connected to the first cavity and the second cavity, respectively. That is, when the gas passage is in a communicating state, both ends of the gas passage are in direct communication with the first cavity and the second cavity, and at this time, the gas pressures in the first cavity and the second cavity can balance with each other, thereby reducing or eliminating the pressure difference and ending the washing of the food to be cooked.

15 **[0028]** In any of the above embodiments, further, the gas passage is of a normally open structure; and the flow area of the gas passage is smaller than the flow area of the pressure device.

20 **[0029]** In this embodiment, the gas passage comprises a normally open structure, and the flow area of the gas passage is smaller than the flow area of the pressure device. That is, per unit time, the amount of gas added or removed by the pressure device is greater than the amount of gas leaked or added through the gas passage, ensuring that a pressure difference is created between the first cavity and the second cavity, and that the pressure difference created is sufficient to allow liquid in the second cavity to enter into the first cavity.

[0030] In any of the above embodiments, further, the pressure relief structure comprises a control member, and the control member controls the connection and disconnection of the gas passage.

25 **[0031]** In this embodiment, the pressure relief structure comprises a control member, and the control member can control the connection and disconnection of the gas passage. That is to say, when the food to be cooked in the first cavity needs to be washed, the gas passage is disconnected by the control member to ensure that a sufficient pressure difference is generated between the first cavity and the second cavity so that the liquid in the second cavity enters into

the first cavity through the liquid communicating structure, and the food to be cooked is washed; after the washing of the food to be cooked in the first cavity is completed, the gas passage is communicated through the control member, and at this time, the pressure difference between the first cavity and the second cavity can be reduced or disappeared so that the liquid in the first cavity flows back to the second cavity through the liquid communicating structure so that the liquid is separated from the food to be cooked. Also, by controlling the connection and disconnection of the gas passage by the control member, on one hand, the gas passage is controlled to be closed by the control member so that the gas leakage during pressurization or depressurization of the pressure device is reduced, the working energy efficiency of the pressure device can be improved, and the cooking time can be saved. On the other hand, during the stopping of the pressurization or depressurization of the pressure device, the gas passage can be brought into an open state by controlling the control member so that the gas passage can quickly balance the pressure difference between the first cavity and the second cavity so that the first cavity can drain the liquid more efficiently and shorten the cooking time, and at the moment of opening the gas passage, a rapid pressure release effect similar to a flash can be simultaneously formed so that the flow rate of the liquid from the surface of the material in the first cavity is higher, the washing effect on the material is better and the washing effect is further improved.

[0032] In any of the above embodiments, further, the control member includes a first control valve controlling the connection and disconnection of the gas passage.

[0033] In this embodiment, the control member includes a first control valve. That is, the connection and disconnection of the gas passage is controlled by a first control valve to ensure that liquid enters into the first cavity or flows back into the second cavity.

[0034] In any of the above embodiments, further, the pressure relief structure includes an exhaust valve, wherein the exhaust valve includes an exhaust port formed as at least a part of the gas passage and a valve spool adapted to open or close the exhaust port, and the control member controls the valve spool and causes the valve spool to open or close the exhaust port.

[0035] In this embodiment, the pressure relief structure further comprises an exhaust valve, and the exhaust valve comprises an exhaust port and a valve spool. The exhaust port is formed as at least a part of the gas passage, and the control member can control the control valve to open or

close the gas outlet so as to realize the connection and disconnection of the gas passage, and ensure that the liquid enters into the first cavity or flows back into the second cavity.

[0036] In any of the above embodiments, further, one of the first cavity and the second cavity is connected to the pressure relief structure and the pressure device; the pressure device are adapted to pressurize or depressurize the first cavity or the second cavity connected thereto; the pressure relief structure is adapted to relieve pressure from the first cavity or the second cavity to which it is connected.

[0037] In this embodiment, one of the first cavity and the second cavity is connected to both the pressure relief structure and the pressure device. The pressure device can pressurize or depressurize the first cavity or the second cavity connected thereto so that a pressure difference is formed between the first cavity and the second cavity; the pressure relief structure may relieve the first cavity or the second cavity connected thereto to reduce the pressure difference between the first cavity and the second cavity.

[0038] In any of the above embodiments, further, one of the first cavity and the second cavity is connected to a pressure device; the cooking appliance is provided with a gas communicating structure adapted to the other of the first cavity and the second cavity.

[0039] In this embodiment, the cooking appliance is further provided with a gas communicating structure, wherein one of the first cavity and the second cavity is connected to a pressure device and the gas communicating structure is in communication with the other of the first cavity and the second cavity. That is, the pressure device may pressurize or depressurize one of the cavities while the other cavity may balance the pressure difference through the gas communicating structure so that the pressure difference between the first cavity and the second cavity is reduced.

[0040] In any of the above embodiments, further, the gas communicating structure and the pressure device are connected to the first cavity and adapted to depressurize the first cavity, and the gas communicating structure is in communication with the second cavity and feeds air to the second cavity.

[0041] In this embodiment, the pressure device is in communication with the first cavity and the gas communicating structure is in communication with the second cavity. The pressure

device can depressurize the first cavity so that a negative pressure is formed in the first cavity, and then the liquid in the second cavity is sucked into the interior of the first cavity under the action of the negative pressure; the gas communicating structure may feed the second cavity to reduce the pressure difference between the first cavity and the second cavity so that liquid
5 entering into the interior of the first cavity flows back to the second cavity.

[0042] In any of the above embodiments, further, the pressure device is connected to and adapted to pressurize the second cavity, and the gas communicating structure is in communication with and exhausts air from the first cavity.

[0043] In this embodiment, the pressure device is in communication with the second cavity
10 and the gas communicating structure is in communication with the first cavity. The pressure device can pressurize the second cavity so that a high pressure is formed in the second cavity so that the liquid in the second cavity is pressed into the interior of the first cavity under the effect of the high pressure; the gas communicating structure may feed air to the first cavity to reduce the pressure difference between the first cavity and the second cavity so that liquid entering into
15 the interior of the first cavity flows back to the second cavity.

[0044] In any of the above embodiments, further, the gas communicating structure comprises a passage structure; wherein the passage structure is a normally open structure, or the passage structure is provided with a one-way valve, or the passage structure is provided with a second control valve and the second control valve is adapted to control the connection and disconnection
20 of the passage structure.

[0045] In this embodiment, the gas communicating structure comprises a passage structure to ensure the passage of the gas. Specifically, passage structures include, but are not limited to, the following: a normally open structure, wherein the passage structure is provided with a one-way valve, the passage structure is provided with a second control valve, and the second control valve
25 is adapted to control the connection and disconnection of the passage structure.

[0046] When the passage structure is a normally open structure, ensuring that the flow area of the passage structure is smaller than the flow area of the pressure device, and ensuring that a pressure difference can be formed between the first cavity and the second cavity; when the passage structure is provided with a one-way valve or a second control valve, the one-way valve

or the second control valve is closed when it is required to wash the food to be cooked in the first cavity, and the one-way valve or the second control valve is opened after the washing is completed.

5 **[0047]** In any of the above embodiments, further, a gas communicating structure is provided on the cooking pot.

[0048] In this embodiment, the gas communicating structure is arranged on the cooking pot, and the forming position of the gas communicating structure is rationally arranged, so as to simplify the overall structure of the cooking appliance.

10 **[0049]** In any of the above embodiments, further, the cooking appliance comprises a cover body, wherein the cover body at least covers the cooking pot, and the cover body is provided with a gas communicating structure.

15 **[0050]** In this embodiment, the cooking appliance comprises a cover body which at least covers part of the area of the cooking pot to prevent dust from falling into the interior of the cooking pot and at the same time to prevent food to be cooked in the interior of the cooking pot from splashing and scalding the user. In addition, the gas communicating structure is provided on the cover body, and the forming position of the gas communicating structure is rationally set, thereby simplifying the overall structure of the cooking appliance.

20 **[0051]** In any of the above embodiments, further, the cooking pot comprises a pot body and a pot handle, and at least one of the pot body and the pot handle is provided with a gas communicating structure.

25 **[0052]** In this embodiment, the cooking pot comprises a pot body and a pot handle. The cooking pot comprises a pot body and a pot handle, the gas communicating structure is arranged on the pot body or the pot handle, and the gas communicating structure can also be arranged on the pot body and the pot handle at the same time, and the forming position of the gas communicating structure is rationally arranged to simplify the overall structure of the cooking appliance.

- [0053]** In any of the above embodiments, further, the pot handle is further provided with a gas communicating structure, and the pot body is provided with a through hole, wherein the through hole communicates the gas communicating structure and the second cavity.
- 5 **[0054]** In this embodiment, when the gas communicating structure is provided on the pot handle, the pot body is provided with a through hole, and the through hole communicates the gas communicating structure and the second cavity, so as to ensure that the first cavity and the second cavity balance the gas pressure via the through hole and the gas communicating structure.
- 10 **[0055]** In any of the above embodiments, further, one of the first cavity and the second cavity is connected to a pressure device; the other of the first cavity and the second cavity is a sealed cavity.
- 15 **[0056]** In this embodiment, one of the first cavity and the second cavity is connected to a pressure device and the other is a sealed cavity. That is, one of the first cavity and the second cavity is connected to the pressure device and the gas passage at the same time, the other is a sealed cavity, and the sealed cavity is in communication with the other cavity only through liquid communication. In use, pressure is applied or applied through the same cavity so that liquid in the second cavity enters into the first cavity and returns to the second cavity.
- [0057]** In any of the above embodiments, further, the pressure device further comprise gas suction device adapted to depressurize the first cavity or the second cavity connected thereto in a suction manner.
- 20 **[0058]** In this embodiment, the pressure device comprises a gas suction device. The gas suction device can suck the gas in the first cavity or the second cavity connected thereto by means of gas suction, thereby forming a pressure difference between the first cavity and the second cavity so that the liquid in the second cavity enters into the first cavity under the effect of the pressure difference, thereby washing the food to be cooked in the first cavity.
- 25 **[0059]** In any of the above embodiments, further, the cooking appliance is provided with a gas inlet, and one of the first cavity and the second cavity for connection with the pressure device is in communication with the gas inlet; the pressure device further comprises a third control valve, wherein the third control valve is connected to the gas inlet and the gas suction device, and controls the connection and disconnection between the gas suction device and the gas inlet.

[0060] In this embodiment, the cooking appliance is provided with a gas inlet, wherein one of the first cavity and the second cavity is in communication with the pressure device is in communication with the gas inlet, ensuring that gas can enter or exit under the action of the pressure device so that a pressure difference is formed between the first cavity and the second cavity. Further, the pressure device may include a third control valve connected to the gas inlet and the gas suction device and configured to control the connection and disconnection of the gas suction device to the gas inlet. That is, the third control valve is opened when the pressure device works to ensure the other flow, and closed when the pressure device does not work.

[0061] In any of the above embodiments, further, the cooking appliance comprises a cover body which at least covers the cooking pot, and the pressure device and the pressure relief structure are provided on the cover body.

[0062] In this embodiment, the cooking appliance comprises a cover body which at least covers part of the area of the cooking pot to prevent dust from falling into the interior of the cooking pot and at the same time to prevent food to be cooked in the interior of the cooking pot from splashing and scalding the user. In addition, the pressure device and the pressure relief structure are arranged on the cover body, and the forming positions of the pressure device and the pressure relief structure are rationally arranged, thereby simplifying the overall structure of the cooking appliance.

[0063] In any of the above embodiments, further, the cooking appliance comprises a cover body, and the cover body comprises a first cover plate, wherein a first sealing member and a second sealing member are provided on the first cover plate, the first cover plate covers the cooking pot, the first sealing member matches with the cooking pot, and the second sealing member matches with the material container.

[0064] In this embodiment, the cooking appliance comprises a cover body, and the cover body comprises a first cover plate, and the cooking pot and the material container are covered simultaneously by the first cover plate. In addition, the first cover plate is provided with a first sealing member and a second sealing member; during the work of the cooking appliance, the first sealing member matches with the cooking pot to seal the position where the first cover plate contacts the cooking pot; the second sealing member matches with the material container to seal where the second cover plate contacts the material container.

[0065] In any of the above embodiments, further, the cooking appliance comprises a cover body, and the cover body comprises a second cover plate and a third cover plate, wherein the second cover plate is provided with a first sealing member, the third cover plate is provided with a second sealing member, the second cover plate covers the cooking pot and the first sealing member matches with the cooking pot, and the third cover plate covers the material container and the second sealing member matches with the material container.

[0066] In this embodiment, the cooking appliance comprises a cover body, and the cover body comprises a second cover plate and a third cover plate, wherein the cooking pot is covered by the second cover plate, and the material container is covered by the third cover plate. In addition, the second cover plate is provided with a first sealing member, and the third cover plate is provided with a second sealing member; during the work of the cooking appliance, the second sealing member matches with the cooking pot to seal the position where the second cover plate contacts the cooking pot; the third sealing member matches with the material container to seal the location where the third cover plate contacts the material container.

[0067] In any of the above embodiments, further, both the first sealing member and the second sealing member are sealing rings, and the first sealing member is nested and distributed outside the second sealing member.

[0068] In this embodiment, both the first sealing member and the second sealing member are sealing rings, so as to ensure the annular sealing of the material container and the peripheral side of the cooking pot; the first sealing member is nested and distributed on the outside of the second sealing member, ensuring the position of the first sealing member and the second sealing member, avoiding interference between the first sealing member and the second sealing member, and ensuring the stable installation of the first sealing member and the second sealing member.

[0069] In any of the above embodiments, further, the first sealing member and the second sealing member are spaced apart from each other internally and externally, and the cover body is provided with a gas communicating structure at a position between the first sealing member and the second sealing member.

[0070] In the embodiment, both the first sealing member and the second sealing member are provided on the cover body, and the first sealing member and the second sealing member are

internally and externally spaced to ensure the stable installation of the first sealing member and the second sealing member; in addition, a gas communicating structure is provided on the cover body between the first sealing member and the second sealing member, ensuring the positional relationship among the first sealing member, the second sealing member and the gas communicating structure, and ensuring that the gas communicating structure can exhaust or
5 inflate the first cavity and the second cavity so as to reduce the pressure difference between the first cavity and the second cavity.

[0071] In any of the above embodiments, further, the material container is configured with a mating surface abutting against a second sealing member.

10 **[0072]** In this embodiment, the material container is configured with a mating surface. During operation of the cooking appliance, the second sealing member abuts against the mating surface, ensuring a tight fit of the second sealing member with the mating surface, ensuring a sealing effect.

[0073] In any of the above embodiments, further, the mating surface is an annular surface, and
15 the extension length of the annular surface from the inner end to the outer end is in the range of 5 mm to 15 mm.

[0074] In this embodiment, the mating surface is an annular surface so that the mating surface of the material container and the annular second sealing member match with each other to ensure sealing at all positions on the peripheral side of the material container; further, the extension of
20 the annular surface from the inner end to the outer end is in the range of 5 mm to 15 mm, i.e., in the radial direction of the material container, ensuring the abutment distance of the second sealing member with the mating surface, ensuring the sealing effect of the second sealing member.

[0075] In any of the above embodiments, further, the cooking pot is provided with a water level indication mark; the material container is provided with a positioning part, the positioning
25 part matches with the cooking pot so that the material container is positioned in the cooking pot, and the position of the material container is adapted to the position of the corresponding water level indication mark.

[0076] In this embodiment, the cooking pot is provided with a water level indication mark, and the material container is provided with a positioning part. The positioning part of the material container matches with the cooking pot to ensure the stable positioning of the material container in the cooking pot and at the same time ensure that the material container is partially accommodated in the cooking pot. In particular, when the material container is partially contained in the cooking pot, the position of the material container is adapted to the position of the corresponding water level indication mark, i.e., the bottom of the material container is at the same height as the corresponding water level indication mark or slightly lower than the water level indication mark, ensuring that the food to be cooked in the first cavity is separated from the liquid in the second cavity before the pressure device does not work, and ensuring that the liquid in the second cavity can enter into the first cavity into contact with the food to be cooked after the pressure device does not work.

[0077] In any of the above embodiments, further, the material container is provided with the liquid communicating structure, the liquid communicating structure comprises a passage, the passage comprises a port and the passage is in communication with the second cavity from the port, wherein when the positioning part matches with the cooking pot, at least a part of the port is located below the corresponding water level indication mark.

[0078] In this embodiment, the liquid communicating structure is provided on the material container and comprises a port, and the liquid communicating structure communicates from the port to the second cavity, and specifically, when the positioning part matches with the cooking pot, the position of at least a part of the port is lower than the corresponding water level indication mark, i.e., ensuring that liquid can enter into and exit through the liquid communicating structure.

[0079] In any of the above embodiments, it is further provided that the wall of the material container is provided with one or more through holes which form at least a part of the liquid communicating structure.

[0080] In this embodiment, the wall of the material container is provided with one or more through holes, through which at least a part of the liquid communicating structure is formed. That is, the liquid communicating structure may be formed extending through the through hole.

[0081] In any of the above embodiments, it is further provided that the material container is provided with a suction pipe which forms at least a part of the liquid communicating structure.

[0082] In any of the above embodiments, further, the inner surface of the cooking pot is configured with a projection part, and the positioning part abuts against the projection part so that the material container is suspended from the cooking pot.

[0083] In this embodiment, a projection part is configured on the inner surface of the cooking pot, and the positioning part of the cooking pot abuts against the projection part, ensuring that the material container is suspended inside the cooking pot. That is, it is ensured that the liquid inside the second cavity does not enter into the inside of the first cavity before the pressure device works.

[0084] In any of the above embodiments, further, the cooking pot comprises a pot opening, and the positioning part abuts against a portion around the pot opening of the cooking pot so that the material container is suspended from the cooking pot.

[0085] In this embodiment, the cooking pot comprises a pot opening, and the positioning part of the material container abuts against a part around the pot opening of the cooking pot to ensure that the material container is suspended inside the cooking pot. That is, it is ensured that the liquid inside the second cavity does not enter into the inside of the first cavity before the pressure device works.

[0086] In any of the above embodiments, further, the material container comprises a concave cavity, wherein the concave cavity comprises a structure with an opening at one end, a flanging is provided on the concave cavity along an edge of the opening, and the flange is formed as at least a part of the positioning part.

[0087] In this embodiment, the material container comprises a concave cavity. The concave cavity is a structure comprising an opening at one end so as to facilitate a user placing food to be cooked in the first cavity; a flanging is provided on the concave cavity along the edge of the opening, and a positioning part is configured through the flange to ensure stable positioning of the material container within the cooking pot. In addition, by forming the positioning part by flanging, the additional positioning part is avoided, the positioning strength is high, and the manufacturing method is simple.

- [0088]** In any of the above embodiments, further, the flanging is configured with a lower projection that rests on the cooking pot.
- [0089]** In this embodiment, the flanging is configured with a lower projection which is formed as at least a part of the positioning part and which rests on the cooking pot. That is, the flanging structure is installed to overlap the cooking pot through the lower projection.
- [0090]** In any of the above embodiments, further, the concave cavity comprises a bottom wall and a side wall, and at least one of the bottom wall and the side wall is provided with a liquid communicating structure.
- [0091]** In this embodiment, the concave cavity comprises a bottom wall and a side wall, and at least one of the bottom wall and the side wall is provided with a liquid communicating structure to ensure that the first cavity is in communication with the second cavity.
- [0092]** In any of the above embodiments, further, the flanging comprises a first arm segment and a second arm segment, the first arm segment transitions between the second arm segment and the concave cavity, the second arm segment is configured to form the positioning part, and the first arm segment is adapted to abut against the second sealing member.
- [0093]** In this embodiment, the flanging comprises a first arm segment and a second arm segment, wherein a positioning part is formed by the second arm segment extending outwards, and the first arm segment is located between the second arm segment and the concave cavity and abuts against the second sealing member, so as to ensure the stable installation of the second sealing member.
- [0094]** In any of the above embodiments, further, the second arm segment comprises an upper side and a lower side, and the second arm segment is configured in a concave shape in which the upper side is concave with respect to the first arm segment and the lower side is convex with respect to the first arm segment; and/or at least a part of the surface of the first arm segment is configured as a mating surface against which the second sealing member abuts.
- [0095]** In this embodiment, the second arm segment comprises an upper side and a lower side. The second arm segment is configured in a concave shape in which an upper side face is concave with respect to the first arm segment and a lower side face projects with respect to the first arm

segment, so as to ensure the stable positioning of the material container; at least a portion of the mating surface of the first arm segment is configured to fit flat to ensure a tight fit of the second sealing member with the first arm segment.

5 **[0096]** In any of the above embodiments, further, the cooking appliance includes, but is not limited to: an electric cooker, an electric pressure cooker and a steam cooker.

[0097] The embodiment of the second aspect of the present application provides a control method of a cooking appliance as described in any one of the embodiments of the first aspect of the present application, and the control method of the cooking appliance comprises: controlling the pressure device to intermittently pressurize or depressurize one of the first cavity and the
10 second cavity.

[0098] The above embodiment of the present application provides a control method of a cooking appliance, wherein a pressure device is used to intermittently pressurize or depressurize one of a first cavity and a second cavity so that a liquid charge process of guiding a liquid into the first cavity by gas pressure and a liquid discharge process of discharging the liquid from the
15 first cavity by releasing the gas pressure through a gas passage (such as a normally open gas passage or a controlled open gas passage) can be formed in a cooking pot, and the liquid charge process and the liquid discharge process can be alternately formed by the intermittent operation of the pressure device so that materials in the first cavity can be repeatedly washed and good the drained rice cooking effect can be produced. In addition, the definition of the method enables the
20 controllability of the washing and water absorption stage in the whole cooking process to be higher, the control logic to be very simple, the response accuracy and control accuracy can be higher, the working flexibility of the cooking appliance can be better improved, and the cooking taste can be improved.

[0099] In the above embodiment, in the step of controlling the pressure device to intermittently
25 pressurizing or depressurizing one of the first cavity and the second cavity, the gas passage is controlled to be in a closed state during the pressurization or depressurization of one of the first cavity and the second cavity by the pressure device; the gas passage is controlled to be in an open state during stop of pressurization or depressurization of one of the first and second cavities by the pressure device.

[0100] In this embodiment, during the process of providing the pressure device for pressurizing or depressurizing, the gas passage is controlled to be in a closed state so that the useless work loss of the pressure device can be saved, the working efficiency of the pressure device can be improved, and the liquid inlet of the first cavity can be made more efficient, and the cooking duration can be shortened. In the process of setting the pressure device to stop pressurizing or depressurizing, the gas passage is controlled to be in an open state so that the gas passage can quickly balance the pressure difference between the first cavity and the second cavity so that the first cavity can discharge liquid more efficiently and shorten the cooking time, and at the moment of opening the gas passage, a rapid pressure release effect similar to flashing can be simultaneously formed so that the flow rate of liquid from the surface of the material in the first cavity is higher, the washing effect on the material is better, and the washing effect is further improved.

[0101] In any of the above embodiments, before the step of controlling the pressure device to intermittently pressurizing or depressurizing one of the first cavity and the second cavity, the control method of the cooking appliance further comprises: controlling the heating device of the cooking appliance to heat the cooking pot.

[0102] In any of the above embodiments, the step of controlling the heating device of the cooking appliance to heat the cooking pot specifically comprises: controlling the heating device of the cooking appliance to heat the cooking pot for a preset time length; or controlling the heating device of the cooking appliance to heat the cooking pot so that the temperature of the medium in the cooking pot rises to a preset temperature threshold.

[0103] In the embodiment, before controlling the pressure between the first cavity and the second cavity, the cooking pot is heated for a preset time length or the medium in the cooking pot is heated to a certain temperature (such as a preset temperature threshold value, it can be understood that the preset time length and/or the preset temperature threshold value are not specific values, and a person skilled in the art would have been able to flexibly set according to specific requirements and the heating requirements of specific food to be heated, etc. or flexibly select same via a user), and thus a better washing effect can be formed. For example, a preset temperature threshold value or a preset time length can be designed to correspond to a release temperature, specifically, when the preset temperature threshold value and/or the preset time

length condition is satisfied, the temperature in the cooking pot is just at the release temperature of the substance, such as starch, to be washed out on the food material to be cooked, and the liquid at this temperature is used to wash the food material to be cooked so that the substance, such as starch, of the food material to be cooked can be washed out more efficiently and sufficiently, and the washing efficiency and effect can be further improved. Alternatively, for example, a preset temperature threshold value or a preset time length can be designed to correspond to the boiling temperature of the liquid, specifically, when the preset temperature threshold value and/or the preset time length condition is satisfied, the cooking pot is about to boil or just boil or has boiled, and the driving action of the gas pressure can be further assisted by the boiling power so that the pressure device can drive the liquid to be washed by the food material to be cooked more efficiently and improve the washing force, thereby further improving the washing efficiency and effect.

[0104] In addition, the temperature (such as a preset temperature threshold value) and/or a preset time duration in the cooking pot is used to match the washing and water absorption stage regulated by the pressure device, a richer cooking mode, a cooking effect and cooking efficiency can be derived according to requirements, which can also enable the product to better meet the personalized requirements of different groups of requirements (such as different sugar requirements, cooking duration requirements, etc.).

[0105] In any of the above embodiments, after the step of controlling the pressure device to intermittently pressurizing or depressurizing one of the first cavity and the second cavity, the control method of the cooking appliance further comprises: controlling the heating device of the cooking appliance to heat the cooking pot.

[0106] In this embodiment, after the washing is completed, the heating device is controlled to heat the cooking pot so that the steam heating process of the food material to be cooked in the first cavity can be realized, which is beneficial to food maturation, and the whole draining cooking process is more orderly, controllable and accurate.

[0107] It will be understood that the pressure device may or may not work during the step of controlling the heating device of the cooking appliance to heat the cooking pot after the step of controlling the pressure device to intermittently pressurizing or depressurizing one of the first cavity and the second cavity.

[0108] For example, the pressure device may be controlled to close, depending on the requirements, for the purpose of saving energy.

[0109] Alternatively, for example, the pressure device may be controlled to work so that a constant pressure (positive or negative) cooking is established within the cooking pot to meet the pressure cooking requirements.

[0110] Yet alternatively, the pressure may be controlled using a pressure device so that the first cavity is fed air using gas pressure during the steam heating stage to further reduce soaking of the food material in the first cavity.

[0111] The embodiment of the third aspect of the present application provides a control device of a cooking appliance, the control device of a cooking appliance comprising: a processor; the processor, when executing the computer program, is capable of implementing the steps of the control method of a cooking appliance as described in any one of the embodiments of the second aspect of the present application.

[0112] The above embodiment of the present application provides a control device of a cooking appliance, and a processor thereof implements the steps of the control method of a cooking appliance as described in any one of the embodiments of the second aspect of the present application by executing a computer program, so as to have all the advantageous effects of any one of the embodiments of the second aspect of the present application, which will not be described in detail herein.

[0113] The embodiment of the fourth aspect of the present application provides a cooking appliance comprising a control device of the cooking appliance as described in any of the embodiments of the third aspect of the present application.

[0114] The above embodiment of the present application provides a cooking appliance having all the advantageous effects of any of the above embodiments of the third aspect of the present application by providing a control device of the cooking appliance as described in any of the embodiments of the third aspect of the present application, which will not be described in detail herein.

[0115] The embodiment of the fifth aspect of the present application provides a computer readable storage medium on which a computer program is stored, wherein the computer program is adapted to be loaded and executed by a processor, and when the computer program is executed by the processor, the steps of the control method of a cooking appliance as described in any of the embodiments of the second aspect of the present application is implemented.

[0116] The above embodiments of the present application provide a computer readable storage medium by which the steps of the control method of a cooking appliance as described in any of the embodiments of the second aspect of the present application can be implemented by using a computer program stored therein, so as to have all the advantageous effects of any of the above embodiments of the second aspect, which will not be described in detail herein.

[0117] The embodiment of the sixth aspect of the present application provides a control method of a cooking appliance comprising: controlling operation of the pressure device during the water absorption stage in response to the cooking instruction, the pressure device being configured to pressurize or depressurize the first cavity, wherein the first cavity pressurization or depressurization is adapted to cause the first cavity to intake water.

[0118] In this embodiment, the cooking instruction is configured to control the cooking appliance to carry out a cooking process to enter into the cooking process, wherein the cooking process comprises a water absorption stage, and after receiving the cooking instruction, the cooking appliance first controls the operation of the pressure device, wherein the pressure device is capable of pressurizing or depressurizing the first cavity, and in the cooking operation, the first cavity is adapted to store the material, and the pressurizing or depressurizing is adapted to drive the liquid into the first cavity so that a positive pressure soaking or a negative pressure soaking of the material can be achieved before the heating cooking operation is carried out to boil the liquid.

[0119] The pressure device may comprise a gas pump, and controlling the operation of the pressure device may comprise controlling the operation of the gas pump, and in addition, a gas passage may be provided between the gas pump and the first cavity, and a control valve may be provided on the gas passage, and controlling the operation of the pressure device may comprise controlling to open the control valve.

[0120] Specifically, the material comprises rice grains, on one hand, soaking the rice grains is achieved by controlling the operation of the pressure device, instead of the manual soaking operation of the user in the related art, so as to improve the user's use experience of the cooking appliance; on the other hand, the sugar content in the rice grains to be cooked is reduced by enabling the sugar in the rice grains to be precipitated, so as to meet the user's cooking demand for low-sugar rice; and on the other hand, by soaking the rice grains to absorb water, it is also advantageous to improve the cooking taste of the rice grains, so as to further improve the user's use experience of the cooking appliance.

[0121] A person skilled in the art would have been able to understand that the cooking appliance may only have a first cavity, and before the heating device is controlled to heat the first cavity, the first cavity is pressurized or depressurized to achieve positive pressure soaking or a negative pressure soaking of the material in the first cavity; in such an arrangement structure, the first cavity also directly forms a cooking cavity, and after the soaking operation is completed, the soaking liquid containing the precipitated sugar is discharged, and a subsequent cooking operation is carried out by re-injecting a new liquid to achieve the preparation of low-sugar rice.

[0122] The cooking appliance may also have a plurality of cavities into which liquid can be introduced from other cavities by pressurizing or depressurizing the first cavity to realize immersion of the material.

[0123] In addition, sugar flows out of the first cavity along with the discharged liquid, and in the process of controlling the heating of the cooking pot, the water vapor without sugar evaporates into the rice grains, thereby achieving the preparation of low-sugar rice.

[0124] In the above embodiment, the step of controlling the operation of the pressure device during the water absorption stage in response to a cooking instruction specifically comprises: controlling the pressure device to start operation configures a pressure difference between the first cavity and the second cavity in response to a cooking instruction, the pressure difference being adapted to drive liquid in the second cavity into the first cavity.

[0125] In this embodiment, the cooking appliance comprises a first cavity and a second cavity comprising a liquid passage, the pressure device being arranged to provide a pressure difference between the first cavity and the second cavity by pressurizing or depressurizing the first cavity,

the liquid in the second cavity being able to flow into the first cavity driven by the pressure difference.

5 [0126] Specifically, rice grains are stored in the first cavity, the pressure difference drives the liquid to flow into the first cavity, sugar is precipitated by soaking the rice grains, and if the pressure difference disappears, the liquid can also flow back to the second cavity, so as to separate the precipitated sugar from the rice grains.

10 [0127] The pressure device may be in direct communication with the first cavity to pressurize or depressurize the first cavity, or may be a pressure device is in communication with the second cavity to pressurize the second cavity to generate a pressure difference between the first cavity and the second cavity, the pressure difference driving fluid into the first cavity to cause the first cavity to achieve positive pressure soaking.

15 [0128] In the above embodiment, the step of controlling the operation of the pressure device during the water absorption stage in response to a cooking instruction further comprises: controlling to open the pressure relief structure, wherein the pressure relief structure is configured to relieve pressure from the first cavity.

[0129] In this embodiment, the pressure in the first cavity is released by controlling to open the pressure relief structure, and after the pressure is released, the liquid in the first cavity can return to the second cavity so as to carry out the precipitated sugar by the liquid flowing back.

20 [0130] Specifically, the pressure release device is controlled to be opened, and in particular, the control valve on the passage between the first cavity and/or the second cavity and the environment is controlled to be opened so that the first cavity and/or the second cavity returns to normal pressure, and the first cavity soaked in positive pressure is exhausted air, or the first cavity soaked in negative pressure is exhausted air, etc.

25 [0131] Herein, pressure release means that the pressure difference is released so that the pressure difference between the first cavity and the second cavity is eliminated, and the liquid in the first cavity can return from the first cavity to the second cavity under the drive of gravity.

[0132] By controlling the pressure device and the pressure relief structure, the water absorption stage comprises a soaking and water absorption stage and/or a washing and water absorption stage.

[0133] In the above embodiment, the step of controlling the operation of the pressure device during the water absorption stage in response to a cooking instruction specifically comprises: controlling the pressure device to continue operating in response to the cooking instruction; controlling the pressure device to enter into a soaking working mode upon detecting that an operating parameter of the pressure device and/or a status parameter of the first cavity matches a preset soak detection parameter, wherein, in the soaking working mode, the pressure device is configured to enter into a closed state, or the pressure device is configured to operate at reduced power, or the pressure device is configured to operate intermittently.

[0134] In this embodiment, in order to prevent the pressure difference from being excessive, it is necessary to determine the condition for the pressure device to change the operation state, wherein the change of the operation state comprises closing the pressure device, controlling the pressure device to operate continuously at a reduced power or controlling the pressure device to operate intermittently, so as to stop configuring the pressure difference, or reducing the increase rate of the pressure difference, so as to make the pressure device enter into the soaking working mode.

[0135] The operating parameter of the pressure device may comprise the time for continuous operation of the pressure device to reach a preset time; the state parameter of the first cavity may comprise the gas pressure in the first cavity, the liquid level of the first cavity, etc.; it is detected that the above parameter matches the preset immersion detection parameter, indicating that the pressure device needs to change the operating state; the pressure device is configured to be in an soaking working mode by changing the operating state of the pressure device; and if the soaking working mode is entered, in the process of driving the liquid to flow into the first cavity, the liquid level of the first cavity is stopped from rising, or the speed of the liquid level of the first cavity is reduced so that the rice grains in the first cavity are soaked.

[0136] Further, the water absorption stage is further configured to be a soaking and water absorption stage and a washing and water absorption stage by controlling the time length that the soaking working mode is maintained.

[0137] In the above embodiment, the water absorption stage comprises a soaking and water absorption stage, and the step of controlling to open a pressure relief structure specifically comprises: in the soaking and water absorption stage, detecting the duration time length of the pressure device under the soaking working mode; controlling to open the pressure relief structure
5 if the duration time length is greater than or equal to the first preset time length.

[0138] In this embodiment, the water absorption stage comprises a soaking and water absorption stage, and the cold-state soaking of the rice grains in the first cavity is achieved by setting a larger first preset time length, and within the first preset time length, by controlling the pressure device to be in a soaking working mode so that the first cavity is always maintained
10 with a certain amount of liquid.

[0139] It will be understood by a person skilled in the art that, as a simpler implementation, the water absorption stage may comprise only a soaking and water absorption stage.

[0140] In the above embodiment, further comprises: starting alternately executing the operations of controlling to open the pressure device and controlling to open the pressure relief structure in the washing and water absorption stage in response to the operation of closing the
15 pressure relief structure upon detecting that the pressure relief structure completes the pressure release operation in the soaking and water absorption stage.

[0141] It will be understood by a person skilled in the art that, as a preferred implementation, the water absorption stage may comprise a soaking and water absorption stage and a washing and water absorption stage.
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[0142] In this embodiment, after the soaking operation is completed, by controlling the alternative opening of the pressure device and the pressure relief structure, the opening of the pressure device is suitable for configuring a pressure difference to drive the liquid to enter into the first cavity, the opening of the pressure relief structure is suitable for reducing the pressure
25 difference to drive the liquid to return to the second cavity, the washing operation is driven to be carried out by rationally setting the interval time between the operation of the opening of the pressure device and the operation of the opening of the pressure relief structure, the rice grains are stored in the first cavity, the washing and water absorption of the rice grains are achieved by carrying out the washing operation several times, and the sugar precipitated in the rice grains is

carried away during the washing process to achieve the water absorption and sugar reduction of the rice grains.

[0143] Specifically, by controlling the pressure device and the pressure relief structure, the liquid is driven to successively carry out a soaking operation and a washing operation on the first cavity, and on one hand, the soaking effect of the rice grains can be improved, and on the other hand, the sugar precipitation rate of the rice grains can be improved, the sugar residue on the surface of the rice grains can be reduced, and thus the cooking effect of the low-sugar rice can be improved.

[0144] In the above embodiment, the step of starting alternately executing the operations of controlling to open the pressure device and controlling to open the pressure relief structure in response to the operation of closing the pressure relief structure specifically comprises: controlling to open the heating device and collecting the water temperature of the first cavity and/or the second cavity upon detecting that the pressure relief structure completes the pressure release operation in the soaking and water absorption stage; and alternately executing the operations of controlling to open the pressure device and controlling to open the pressure relief structure upon detecting that the water temperature is greater than or equal to the preset washing temperature.

[0145] In this embodiment, when the pressure device and the pressure relief structure are controlled to drive the liquid to carry out a washing operation after the soaking and water absorption is completed, the heating device for heating the first cavity and/or the second cavity can be further controlled to be opened so as to achieve the washing of the first cavity above the normal temperature and below the boiling temperature, on one hand, the boiling time in the later cooking stage can be shortened, on the other hand, the water absorption rate of the rice grains can be further improved so as to achieve uniform heating, and on the other hand, the effect of washing and sugar draining can also be further improved.

[0146] In the above embodiment, the water absorption stage comprises a washing and water absorption stage, and the step of controlling operation of the pressure device during the water absorption stage in response to the cooking instruction specifically comprises: alternately executing the operations of controlling to open the pressure device and the operation of

controlling to open the pressure relief structure during the washing and water absorption stage in response to the cooking instruction.

[0147] It will be understood by a person skilled in the art that the water absorption stage may also comprise only a washing and water absorption stage.

5 **[0148]** In the embodiment, the water absorption stage comprises a washing and water absorption stage; by alternately opening a pressure device and a pressure relief structure, opening the pressure device is adapted to configure a pressure difference to drive the liquid into the first cavity, and opening the pressure relief structure is adapted to reduce the pressure difference to drive the liquid to return to the second cavity; by rationally setting the interval time between the
10 operation of opening the pressure device and the operation of opening the pressure relief structure, the liquid is driven to complete one washing operation on the first cavity, and the rice grains are stored in the first cavity; by carrying out the washing operation multiple times, the washing and water absorption of the rice grains is realized, and the sugar precipitated from the rice grains is carried away during the washing process to achieve the water absorption and sugar
15 reduction of the rice grains.

[0149] In the above embodiment, the step of alternately executing the operations of controlling to open the pressure device and controlling to open the pressure relief structure in the washing and water absorption stage specifically comprising: controlling to open the pressure relief structure in response to operation of controlling the pressure device into the soaking working
20 mode during an alternate execution.

[0150] In this embodiment, by taking the moment when the pressure device is controlled to enter into the soaking working mode as the opening moment of the pressure release device, based on the above description, the moment when the pressure device is controlled to enter into the soaking working mode can be taken as the moment when the driving liquid can completely
25 submerge the material, at this moment, the pressure relief structure is controlled to be opened, the pressure difference is controlled to be reduced so that the liquid falls back under the action of gravity, and the liquid is driven into the first cavity again by re-controlling the pressure device to be opened so as to repeat the washing operation.

[0151] In the above embodiment, further comprising: if the number of times of opening the pressure device and/or the pressure relief structure is greater than or equal to a preset number of times during the washing and water absorption stage, controlling the pressure device and the pressure relief structure to close after the pressure relief structure releases pressure from the first cavity; and/or if the duration time length of the washing and water absorption stage is greater than or equal to the second preset time length, controlling the pressure device and the pressure relief structure to close after the pressure relief structure releases pressure from the first cavity.

[0152] In this embodiment, detecting the number of times of opening the pressure device and/or the pressure relief structure can be specifically realized by detecting the number of times of opening the control valve in the pressure device and/or the control valve in the pressure relief structure, and determining the number of times of washing operation by detecting the number of times of opening so as to end washing control when detecting the number of times of washing operation is greater than or equal to a preset number of times.

[0153] Alternatively, determining when to end the washing control by detecting whether the duration time length of the washing and water absorption stage is greater than or equal to a second preset time length; and by rationally setting the opening times and/or the second preset time length, on one hand, a better washing effect can be obtained, and on the other hand, the water absorption time length can also be rationally controlled so as to ensure that the whole cooking process is not too long.

[0154] In the above embodiment, the step of controlling to open the pressure relief structure further comprises: controlling to close the pressure relief structure upon detecting that the opening time of the pressure relief structure is greater than or equal to a third preset time length, and/or upon detecting that a state parameter of the first cavity matches a preset fallback detection parameter.

[0155] In this embodiment, whether the pressure relief structure completes the pressure release operation is determined by detecting the opening time length of the pressure relief structure, and/or detecting parameters such as the gas pressure in the first cavity, the liquid level of the first cavity, etc. for example, by rationally setting a third preset time length, if it is detected that the opening time length is greater than or equal to the third preset time length, the pressure release operation can be considered to be completed, and/or it is detected that the gas pressure of the first

cavity returns to normal pressure, the pressure release operation can also be considered to be completed, and/or it is detected that the liquid level of the first cavity drops to a lower liquid level, the pressure release operation can also be considered to be completed, in combination with the connection and disconnection control of the pressure device, the driving operation of soaking the liquid and/or the driving operation of washing the liquid is accurately carried out.

[0156] In the above embodiment, the step of controlling the pressure device to start operating to configure a pressure difference between the first cavity and the second cavity specifically comprises: controlling the pressure device to exhaust air from the first cavity and/or the pressure device is controlled to discharge to the second cavity to configure the pressure difference.

[0157] In this embodiment, the pressure device may comprise a gas suction pump, a gas passage is in communication with the first cavity, and a control valve arranged on the gas passage, wherein by controlling the operation of the gas suction pump and controlling to open the control valve, gas is sucked from the first cavity, a pressure difference is formed between the first cavity and the second cavity, and the pressure difference drives the liquid of the second cavity into the first cavity, so as to achieve negative pressure soaking.

[0158] The pressure device may further include a gas suction pump, a gas passage is in communication with the second cavity, and a control valve provided on the gas passage to discharge the second cavity by controlling the gas pump to operate and controlling the control valve to open, forming a pressure difference between the first cavity and the second cavity, the pressure difference driving the liquid of the second cavity into the first cavity, causing the first cavity to increase in gas pressure and achieve positive pressure soaking.

[0159] In the above embodiment, before the step of controlling the operation of the pressure device during the water absorption stage in response to the cooking instruction, further comprising: collecting a level parameter of the second cavity; determining that the liquid level of the second cavity is lower than or equal to the bottom surface of the first cavity according to the liquid level parameter, and controlling the pressure device and the pressure relief structure to work in the soaking and water absorption stage or the washing and water absorption stage; and determining that the liquid level of the second cavity is higher than the bottom surface of the first cavity according to the liquid level parameter, and controlling the pressure device and the

pressure relief structure to work successively in the soaking and water absorption stage and the washing and water absorption stage.

5 **[0160]** In this embodiment, before entering into the cooking process according to the cooking instruction, the initial liquid level in the second cavity can also be detected, and if the initial liquid level is higher than the bottom surface of the first cavity, i.e., a part of the liquid has entered the first cavity in the initial state, the operation of the pressure device and the pressure relief structure can be controlled so that the cooking appliance enters into the soaking and water absorption stage and the washing and water absorption stage successively, so as to achieve a better water absorption effect.

10 **[0161]** If the initial liquid level is lower than or equal to the bottom surface of the first cavity, it is possible to enter into only the soaking and water absorption stage, or only the washing and water absorption stage so that the water absorption process takes less time and thus the whole cooking process takes less time.

15 **[0162]** In the above embodiment, further comprises: if the liquid level of the second cavity is higher than the bottom surface of the first cavity, after ending the water absorption stage, controlling to open the drainage structure and/or the pumping device; and controlling to close the drainage structure and/or the pumping device upon detecting that the liquid level of the second cavity is lower than or equal to the bottom surface of the first cavity.

20 **[0163]** In this embodiment, if the initial liquid level is higher than the bottom surface of the first cavity, before entering into the cooking stage, in order to prevent the precipitated sugar in the liquid from being re-mixed with the rice grains during the cooking process, it is necessary to carry out a draining operation so as to make the liquid level to be lower than or equal to the bottom surface of the first cavity to ensure the cooking effect.

25 **[0164]** In the above embodiment, further comprises: determining to end the water absorption stage, and in a boiling cooking stage, controlling the heating device to start operating according to the first power, and controlling the operation time length of the heating device to be greater than or equal to the sixth preset time length upon detecting that the duration time length of the water absorption stage is greater than or equal to the preset water absorption time length.

5 **[0165]** In this embodiment, a preset water absorption time length is set to detect whether the duration time length during which the pressure device and the pressure release device operate in the water absorption stage reaches the preset water absorption time length; if the preset water absorption time length is reached, it indicates that the rice grains have reached a better water absorption state; at this time, the heating device is controlled to operate so as to enter into the boiling cooking stage; the heating device is controlled to operate according to the first power so as to heat the second cavity and maintain the sixth preset time length; and in the process of controlling the heating of the second cavity, the water vapor not containing sugar evaporates into the rice grains, thereby achieving the preparation of low-sugar rice.

10 **[0166]** The heating device is controlled to operate according to the first power, so as to maintain the temperature in the cooking pot at least between 70°C and 100°C, allowing the rice saturated with water to sufficiently absorb heat and gelatinize, and this process is also referred to as a boiling heating rice cooking stage with a high power, wherein the first power $W > 200 \text{ W/s}$.

15 **[0167]** In the above embodiment, further comprises: determining to end the boiling cooking stage, and controlling the heating device to continue operating according to the second power during a simmering cooking stage upon detecting that an operation time length of the heating device according to the first power is greater than or equal to a sixth preset time length, and/or upon detecting that a duration time length of the water temperature in the second cavity in a state of being greater than or equal to a boiling temperature is greater than or equal to a seventh preset time length; and controlling to close the heating device so as to end the cooking process upon
20 detecting that the operation time length of the heating device according to the second power is greater than or equal to an eighth preset time length.

25 **[0168]** In this embodiment, the heating device is controlled to work for greater than or equal to a sixth preset time length according to the first power, and/or it is detected that when the water temperature in the second cavity continues to be greater than or equal to a seventh preset time length in a state of greater than or equal to the boiling temperature, the rice can be rapidly cooked.

[0169] The heating device is controlled to operate according to the first power for heating the liquid in the second cavity to a fast boiling state.

[0170] In addition, the heating device is controlled to operate according to the second power for enabling the liquid in the second cavity to continue to be in a heat dissipation state so as to maintain the temperature of the cooked rice.

[0171] The heating power is regulated down to a second heating power, which is mainly a stage in which the rice is more fragrant, and in addition to ensuring that the rice grains that are not fully gelatinized during the boiling cooking stage are gelatinized again, lasts for an eighth preset time length (5-20 minutes being optimal), the second power being less than 150 W/s.

[0172] When it is detected that the above condition is satisfied, the heating power is controlled to be regulated down to the second heating power to carry out the rice cooking operation to enhance the cooking effect of the rice.

[0173] The embodiment of the seventh aspect of the present application provides a control method of a cooking appliance, wherein the control method comprises: in response to a cooking instruction, controlling operation of a pressure device during a water absorption stage, the pressure device being configured to pressurize or depressurize a first cavity, the first cavity pressurization being adapted to allow positive pressure water absorption of material in the first cavity, the first cavity depressurization being adapted to allow negative pressure water absorption of material in the first cavity; controlling a liquid drainage device and/or a pumping device to start upon detecting that a working parameter of the pressure device satisfies a preset water absorption treatment condition, wherein the liquid drainage device is configured to drain the first cavity and the pumping device is configured to pump the first cavity.

[0174] In this embodiment, on the premise that the first cavity has been filled with water, the pressure device is set to pressurize or depressurize the first cavity so as to realize the rice grain positive pressure soaking or negative pressure soaking in the first cavity, and it is determined that the water absorption treatment is completed by detecting that the working parameter of the pressure device satisfies the preset water absorption treatment condition, and the liquid drainage device and/or the pumping device are controlled to be started so as to discharge the excessive cooking liquid; on one hand, the rice grain soaking is realized by controlling the operation of the pressure device so as to replace the manual soaking operation of the user in the related art, so as to improve the user's experience in using the cooking appliance; on the other hand, by precipitating the sugar in the rice grains, reducing the sugar content in the rice grains to be

cooked so as to meet the user's cooking demand for low-sugar rice, and on the other hand, by soaking the rice grains to absorb water, it is also advantageous to improve the heat uniformity of the rice grains so as to further improve the user's use experience of the cooking appliance.

5 **[0175]** In the above embodiment, before the step of controlling the operation of the pressure device in response to the cooking instruction, further comprising: controlling a liquid inlet device configured to introduce a dosed liquid into the first cavity to start.

[0176] In this embodiment, the introduction of a dosed liquid into the first cavity is achieved by providing a liquid inlet device, the dosed liquid being adapted to meet the soaking water uptake requirements, thereby saving manual handling steps by the user.

10 **[0177]** In the above embodiment, further comprises: controlling the pressure relief structure to open upon detecting that the operating parameter satisfies the water absorption treatment condition, wherein the pressure relief structure is configured to release the pressure from the first cavity.

15 **[0178]** In this embodiment, the first cavity is brought back to atmospheric pressure by opening the pressure release device to meet the next cooking requirement.

[0179] In the above embodiment, the step of controlling a liquid drainage device to start upon detecting that a working parameter of a pressure device satisfies a preset water absorption treatment condition specifically comprises: determine that the working parameter satisfies the water absorption treatment condition upon detecting that the opening time length of the pressure device is greater than or equal to the fourth preset time length, and/or upon detecting that the duration time length of the first cavity at the specified pressure is greater than or equal to the fifth preset time length; controlling the liquid drainage device to start and detecting a liquid level of the first cavity; and controlling the liquid drainage device and/or the pumping device to close upon detecting that the liquid level of the first cavity is lower than or equal to the preset water level.

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[0180] In the above embodiment, further comprises: determining to end the water absorption stage, and in a boiling cooking stage, controlling the heating device to start operating according to the first power, and controlling the operation time length of the heating device to be greater

than or equal to the sixth preset time length upon detecting that the duration time length of the water absorption stage is greater than or equal to the preset water absorption time length,.

[0181] In this embodiment, a preset water absorption time length is set to detect whether the duration time length during which the pressure device and the pressure release device operate in the water absorption stage reaches the preset water absorption time length; if the preset water absorption time length is reached, it indicates that the rice grains have reached a better water absorption state; at this time, the heating device is controlled to operate so as to enter into the boiling cooking stage; the heating device is controlled to operate according to the first power so as to heat the first cavity and maintain the sixth preset time length; and in the process of controlling the heating of the first cavity, the water vapor not containing sugar evaporates into the rice grains, thereby achieving the preparation of low-sugar rice.

[0182] Wherein the heating device is controlled to operate according to the first power, so as to maintain the temperature in the cooking pot at least between 70°C and 100°C, allowing the rice saturated with water to sufficiently absorb heat and gelatinize, and this process is also referred to as a boiling heating rice cooking stage with a high power, wherein the first power $W > 200 \text{ W/s}$.

[0183] In the above embodiment, further comprises: determining to end the boiling cooking stage, and controlling the heating device to continue operating according to the second power during the simmering cooking stage upon detecting that the operation time length of the heating device according to the first power is greater than or equal to a sixth preset time length, and/or upon detecting that the duration time length of the water temperature in the first cavity in the state of being greater than or equal to the boiling temperature is greater than or equal to a seventh preset time length; and controlling to close the heating device so as to end the cooking process upon detecting that the operation time length of the heating device according to the second power is greater than or equal to an eighth preset time length.

[0184] In this embodiment, the heating device is controlled to work for greater than or equal to a sixth preset time length according to the first power, and/or it is detected that when the water temperature in the first cavity continues to be greater than or equal to a seventh preset time length in a state of greater than or equal to the boiling temperature, the rice can be rapidly cooked.

- [0185] The heating device is controlled to operate according to the first power for heating the liquid in the first cavity to a fast boiling state.
- [0186] In addition, the heating device is controlled to operate according to the second power for enabling the liquid in the first cavity to continue to be in a heat dissipation state so as to maintain the temperature of the cooked rice.
- [0187] The heating power is regulated down to a second heating power, which is mainly a stage in which the rice is more fragrant, and in addition to ensuring that the rice grains that are not fully gelatinized during the boiling cooking stage are gelatinized again, lasts for an eighth preset time length (5-20 minutes being optimal), the second power being less than 150 W/s.
- [0188] When it is detected that the above condition is satisfied, the heating power is controlled to be regulated down to the second heating power to carry out the rice cooking operation to enhance the cooking effect of the rice.
- [0189] The embodiment of the eighth aspect of the present application provides a control device of a cooking appliance comprising: a memory, a processor, and a computer program stored on the memory and executable on the processor; the computer program, when executed by the processor, implements the steps of the control method of the cooking appliance as described in any one of the embodiments of the sixth aspect of the present application. Therefore, all the advantageous effects of any of the above embodiments of the sixth aspect will not be described in detail herein.
- [0190] The embodiment of the ninth aspect of the present application provides a control device of a cooking appliance, comprising: a memory, a processor, and a computer program stored on the memory and executable on the processor; the computer program, when executed by the processor, implements the steps of the control method of the cooking appliance as described in any one of the embodiments of the seventh aspect of the present application. Therefore, all the advantageous effects of any of the above embodiments of the seventh aspect will not be described in detail herein.
- [0191] The embodiment of the tenth aspect of the present application provides a cooking appliance comprising: a cooking pot comprising a first cavity; a control device of a cooking appliance as described in any one of the embodiments of the eighth aspect of the present

application; a pressure device connected to the control device, the pressure device being configured to pressurize or depressurize the first cavity, the first cavity pressurization or depressurization being adapted to feed water to the first cavity.

5 **[0192]** In the above embodiment, further comprises: a material container at least partially accommodated in the cooking pot, a first cavity is formed in the material container, and a second cavity is formed between the cooking pot and the material container, wherein a liquid passage is formed between the first cavity and the second cavity, and the liquid passage communicates the first cavity and the second cavity; the pressure device is further configured to configure a pressure difference between the first cavity and the second cavity, the pressure difference being adapted to drive the liquid in the second cavity into the first cavity.

15 **[0193]** In this embodiment, the cooking appliance comprises a cooking pot and a material container, wherein the material container forms a first cavity, and a second cavity is formed between the cooking pot and the material container, the material container is further provided with a bracket, and the bracket can define a liquid passage from the first cavity to the second cavity so that the liquid of the second cavity enters into the first cavity through the liquid passage, and the liquid of the first cavity returns to the second cavity through the liquid passage, in combination with the pressure device, and the control of the pressure device by the control device, on one hand, soaking the rice grains is achieved by controlling the operation of the pressure device, instead of the manual soaking operation of the user in the related art, so as to improve the user's use experience of the cooking appliance; on the other hand, the sugar content in the rice grains to be cooked is reduced by enabling the sugar in the rice grains to be precipitated, so as to meet the user's cooking demand for low-sugar rice; and on the other hand, by soaking the rice grains to absorb water, it is also advantageous to improve the cooking taste of the rice grains, so as to further improve the user's use experience of the cooking appliance.

25 **[0194]** In the above embodiment, further comprises: a pressure relief structure comprising a first gas passage connected to at least one of the first cavity and the second cavity, and when the first gas passage is open, a pressure difference between an inside and an outside of the first cavity is reduced.

30 **[0195]** In this embodiment, the pressure relief structure is adapted to reduce the pressure difference between the first cavity and the second cavity, the pressure is released from the first

cavity by controlling to open the pressure relief structure, and the liquid in the first cavity can be returned to the second cavity after the pressure release, so as to remove the precipitated sugar by the liquid flowing back.

5 **[0196]** In the above embodiment, further comprises: a cavity state detection assembly provided in the material holder and/or the cooking pot, the water absorption state detection assembly being connected to the control device, the water absorption state detection assembly being configured to detect a state parameter of the first cavity and/or the second cavity, the state detection assembly comprising a temperature sensor, and a liquid level sensor and/or a gas pressure sensor.

10 **[0197]** In this embodiment, a temperature sensor is used for detecting the temperature of the liquid in the first cavity and/or the second cavity, and a liquid level sensor and/or a gas pressure sensor is used for detecting whether the liquid level in the first cavity rises to satisfy the soaking of the rice grains, so as to guide the control of the pressure device and the pressure relief structure through the detection of the liquid level sensor and/or the gas pressure sensor.

15 **[0198]** In addition, the liquid level sensor may also detect an initial liquid level of the liquid entering into the second cavity to determine a specific control manner based on the detection of the initial liquid level to drive the liquid through the pressure device and the pressure release device to carry out the soaking operation and/or the washing operation.

20 **[0199]** In the above embodiment, further comprises: a liquid drainage device and/or a pumping device connected to the control device, the liquid drainage device being configured to drain liquid from the second cavity, the pumping device being configured to pump liquid from the second cavity.

[0200] In the above embodiment, further comprises: a heating device connected to the control device, the heating device being configured to heat the cooking pot.

25 **[0201]** The embodiment of the eleventh aspect of the present application provides a cooking appliance comprising: a cooking pot comprising a first cavity; a control device of a cooking appliance according to any one of the embodiments of the ninth aspect of the present application; a pressure device connected to the control device, the pressure device being configured to pressurize or depressurize the first cavity, the first cavity pressurization being adapted to allow the material in the first cavity to absorb water under positive pressure, and the first cavity

depressurization being adapted to allow the material in the first cavity to absorb water under negative pressure; a liquid drainage device and/or a pumping device connected to the control device, the liquid drainage device being configured to drain the first cavity and the pumping device being configured to pump the first cavity.

5 **[0202]** In the above embodiment, further comprises: a liquid inlet device connected to the control device, the liquid inlet device being configured to introduce a dosed liquid into the first cavity.

10 **[0203]** In the above embodiment, further comprises: a pressure relief structure connected to the control device, and the pressure relief structure is configured to relieve pressure from the first cavity.

[0204] In the above embodiment, further comprises: a heating device connected to the control device, the heating device being configured to heat the cooking pot.

15 **[0205]** The embodiment of the twelfth aspect of the present application provides a computer readable storage medium on which a control program of a cooking appliance is stored, wherein when the computer program is executed by a processor, the steps of the control method of a cooking appliance as described in any one of the embodiments of the sixth and seventh aspects of the present application is implemented. Accordingly, all the advantageous effects of any of the embodiments of the sixth and seventh aspects described above will not be set forth herein.

20 **[0206]** Additional aspects and advantages of the present application will be set forth in part in the description which follows, or may be learned by practice of the present application.

BRIEF DESCRIPTION OF THE DRAWINGS

25 **[0207]** The above and/or additional aspects and advantages of the present application will become apparent and readily understood from the following description of embodiments taken in conjunction with the accompanying drawings of which:

[0208] Fig. 1 is a schematic view illustrating a structure of a cooking appliance according to an embodiment of the present application;

- [0209] Fig. 2 is a schematic view of the cooking appliance of the embodiment shown in Fig. 1 in a first working state;
- [0210] Fig. 3 is a schematic view of the cooking appliance of the embodiment shown in Fig. 1 in a second working state;
- 5 [0211] Fig. 4 is a schematic view showing the structure of a cooking appliance according to another embodiment of the present application;
- [0212] Fig. 5 is a schematic view of the cooking appliance of the embodiment shown in Fig. 4 in a first working state;
- [0213] Fig. 6 is a schematic view of the cooking appliance of the embodiment shown in Fig. 4
10 in a second working state;
- [0214] Fig. 7 is an enlarged structural view at A of the cooking appliance of the embodiment shown in Fig. 1;
- [0215] Fig. 8 is a schematic view showing a structure of a material container in a cooking appliance according to an embodiment of the present application;
- 15 [0216] Fig. 9 is a schematic view of the material container of the embodiment of Fig. 8 from another perspective;
- [0217] Fig. 10 is a schematic cross-segmental view of the material container of the embodiment shown in Fig. 8;
- [0218] Fig. 11 is an enlarged schematic view at B of the material container of the embodiment
20 shown in Fig. 10;
- [0219] Fig. 12 is a schematic flowchart of a control method of the cooking appliance according to an embodiment of the present application;
- [0220] Fig. 13 is a schematic flowchart of a control method of the cooking appliance according to an embodiment of the present application;
- 25 [0221] Fig. 14 is a schematic flowchart of a control method of the cooking appliance according to an embodiment of the present application;

- [0222] Fig. 15 is a schematic flowchart of a control method of the cooking appliance according to an embodiment of the present application;
- [0223] Fig. 16 is a schematic view showing the structure of a cooking appliance according to still another embodiment of the present application;
- 5 [0224] Fig. 17 is a schematic flowchart showing a control method of the cooking appliance according to an embodiment of the present application;
- [0225] Fig. 18 is a schematic flowchart showing a control method of the cooking appliance according to an embodiment of the present application;
- [0226] Fig. 19 is a schematic flowchart showing a control method of the cooking appliance
10 according to an embodiment of the present application;
- [0227] Fig. 20 is a schematic flowchart showing a control method of the cooking appliance according to an embodiment of the present application;
- [0228] Fig. 21 is a schematic flowchart showing a control method of the cooking appliance according to an embodiment of the present application;
- 15 [0229] Fig. 22 is a schematic flowchart showing a control method of the cooking appliance according to an embodiment of the present application;
- [0230] Fig. 23 is a schematic flowchart showing a control method of the cooking appliance according to an embodiment of the present application;
- [0231] Fig. 24 is a schematic flowchart showing a control method of the cooking appliance
20 according to an embodiment of the present application;
- [0232] Fig. 25 is a schematic view showing a structure of the cooking appliance of the embodiment shown in Fig. 16 in a first state;
- [0233] Fig. 26 is a schematic view showing a structure of the cooking appliance of the embodiment shown in Fig. 16 in a second state;
- 25 [0234] Fig. 27 is a diagram showing a control cooking progress curve of a cooking appliance according to an embodiment of the present application;

[0235] Fig. 28 is a diagram showing a control cooking progress curve of a cooking appliance according to an embodiment of the present application;

[0236] Fig. 29 is a schematic flowchart of a control method of a cooking appliance of one embodiment of the present application;

5 [0237] Fig. 30 shows a schematic block diagram of a control device of a cooking appliance of one embodiment of the present application;

[0238] Fig. 31 shows a schematic block diagram of a cooking appliance of one embodiment of the present application.

10 [0239] The corresponding relationship between the reference signs and the component names in Figs. 1-11, 16 and 25-26 is:

[0240] 100 cooking appliance, 102, 102' cooking pot, 104, 104' material container, 1042 mating surface, 1044 positioning part, 1046 concave cavity, 1048 bottom wall, 1050 side wall, 1052 first arm segment, 1054 second arm segment, 106, 106' first cavity, 108, 108' second cavity, 110, 110' pressure device, 1102 gas suction device, 1104 third control valve, 112 pressure relief structure, 1122 control member, 1124 exhaust valve, 114 cover body, 1142 first cover plate, 116 first sealing member, 118 second sealing member, 120 port, 204' liquid passage, 1102' air pump, 1104' fourth control valve, 1106' fifth control valve, 1122' electromagnet, 1124' ball valve, 50' outer cover, 200 food to be cooked.

20 DETAILED DESCRIPTION OF THE DISCLOSURE

[0241] In order that the above objects, features and advantages of the present application can be more clearly understood, the present application will be described in further detail below with reference to the accompanying drawings and detailed description. It should be noted that the embodiments and features of the embodiments of the present application may be combined with each other without conflict.

[0242] In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present application, however, the present application may be practiced in other ways than those described herein, and therefore the scope of the present application is not limited by the examples disclosed below.

[0243] Some embodiments according to the present application are described below with reference to Figs. 1-31.

[0244] Embodiment 1:

[0245] As shown in Figs. 1 and 4, a cooking appliance 100 according to a first embodiment of the present application includes: a cooking pot 102, a material container 104, a pressure device 110, and a pressure relief structure 112.

[0246] The material container 104 is at least partially accommodated in the cooking pot 102, a first cavity 106 is formed in the material container 104, a second cavity 108 is formed between the cooking pot 102 and the material container 104, the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid communicating structure is formed between the first cavity 106 and the second cavity 108, and the liquid communicating structure communicates the first cavity 106 and the second cavity 108; a pressure device 110 is in communication with the first cavity 106, and the pressure device 110 works to generate a pressure difference between the first cavity 106 and the second cavity 108; the pressure relief structure 112 comprises a gas passage connected to at least one of the first cavity 106 and the second cavity 108 to reduce a pressure difference between the first cavity 106 and the second cavity 108.

[0247] Specifically, before cooking is started, as shown in Figs. 2 and 5, the food to be cooked 200 is in the first cavity 106 and the liquid is in the second cavity 108, at which time the liquid in the second cavity 108 does not come into contact or comes into little contact with the food to be cooked 200; as shown in Figs. 3 and 6, during the cooking process, the pressure device 110 works to generate a pressure difference between the first cavity 106 and the second cavity 108, and the liquid in the second cavity 108 enters into the first cavity 106 under the effect of the pressure, thereby fully contacting the food 200 to be cooked in the first cavity 106; then, as shown in Figs. 1 and 4, the pressure difference between the first cavity 106 and the second cavity 108 is reduced or eliminated by the gas passage through the pressure relief structure 112, and the liquid in the first cavity 106 flows out through the liquid passage structure, and the food 200 to be cooked in the first cavity 106 is separated from the liquid.

[0248] That is, through the cooperation of the pressure device 110 and the pressure relief structure 112, particularly through the gas passage of the pressure relief structure 112, the user can select whether the first cavity 106 is in contact with the liquid or not according to actual situations, and can select the specific time, number and time length of washing of the liquid to the food 200 to be cooked in the first cavity 106, so as to improve the operational flexibility of the cooking appliance 100 and improve the taste of cooking.

[0249] Specifically, the pressure device 110 may generate a negative pressure within the first cavity 106 so that liquid in the second cavity 108 is drawn into the first cavity 106 through the liquid communicating structure under the suction of the negative pressure to wash the food 200 to be cooked within the first cavity 106.

[0250] Embodiment 2:

[0251] A cooking appliance according to a second embodiment of the present application comprises: a cooking pot, a material container, a pressure device and a pressure relief structure (this embodiment is not shown in the figure).

[0252] The material container is at least partially accommodated in the cooking pot, a first cavity is formed in the material container, a second cavity is formed between the cooking pot and the material container, the first cavity can be used for placing food to be cooked, and the second cavity can be used for storing liquid; a liquid communicating structure is formed between the first cavity and the second cavity, and the liquid communicating structure communicates the first cavity and the second cavity; a pressure device is in communication with the first cavity, and the pressure device is operable to generate a pressure difference between the first cavity and the second cavity; the pressure relief structure comprises a gas passage connected to at least one of the first cavity and the second cavity to reduce a pressure difference between the first cavity and the second cavity.

[0253] That is, this embodiment is different from Embodiment 1 in the connection position of the pressure device. In this embodiment, the pressure device is connected to the second cavity and can generate a high pressure in the second cavity so that the liquid located in the second cavity is forced under the high pressure through the liquid communicating structure into the first cavity to wash the food to be cooked in the first cavity.

[0254] Embodiment 3:

[0255] As shown in Figs. 1 and 4, a cooking appliance 100 according to a third embodiment of the present application includes: a cooking pot 102, a material container 104, a pressure device 110, and a pressure relief structure 112.

5 **[0256]** As shown in Figs. 2 and 5, the material container 104 is at least partially accommodated in the cooking pot 102, and a first cavity 106 is formed in the material container 104, and a second cavity 108 is formed between the cooking pot 102 and the material container 104, wherein the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid communicating structure is formed between
10 the first cavity 106 and the second cavity 108, and the liquid communicating structure communicates the first cavity 106 and the second cavity 108; as shown in Figs. 3 and 6, a pressure device 110 is in communication with either the first cavity 106 or the second cavity 108, the pressure device 110 being operable to generate a pressure difference between the first cavity 106 and the second cavity 108; the pressure relief structure 112 comprises a gas passage, and the
15 gas passage is connected to the external environment.

[0257] Specifically, the gas passage is in communication with the environment, and the gas passage is in communication with either the first cavity 106 or the second cavity 108. When the gas passage is in a communicating state, one end of the gas passage is in communication with the external atmospheric pressure, and the other end of the gas passage is in communication with the
20 first cavity 106 or the second cavity 108 to the environment, i.e., both the first cavity 106 and the second cavity 108 are in direct communication with the external environment, ensuring that the gas pressure values in the first cavity 106 and the second cavity 108 are the same as the external environment, ensuring that the pressure difference between the first cavity 106 and the second cavity 108 is reduced, and ending the washing of the food 200 to be cooked.

25 **[0258] Embodiment 4:**

[0259] A cooking appliance according to a fourth embodiment of the present application comprises: a cooking pot, a material container, a pressure device and a pressure relief structure (this embodiment is not shown in the figure).

- [0260] The material container is at least partially accommodated in the cooking pot, and a first cavity is formed in the material container, and a second cavity is formed between the cooking pot and the material container, wherein the first cavity can be used for placing food to be cooked, and the second cavity can be used for storing liquid; a liquid communicating structure is formed between the first cavity and the second cavity, and the liquid communicating structure communicates the first cavity and the second cavity; a pressure device is in communication with the first cavity or the second cavity, the pressure device operates to generate a pressure difference between the first cavity and the second cavity; a pressure relief structure is connected to the first cavity and the second cavity, respectively.
- 10 [0261] Specifically, the gas passages are connected to the first cavity and the second cavity, respectively. That is, when the gas passage is in a communicating state, both ends of the gas passage are in direct communication with the first cavity and the second cavity, and at this time, the gas pressures in the first cavity and the second cavity can balance with each other, thereby reducing or eliminating the pressure difference and ending the washing of the food to be cooked.
- 15 [0262] In particular, the cooking appliance according to the embodiment, after the washing of the food to be cooked is completed, the gas pressure in the first cavity and the second cavity is not equal to the external environment, and the boiling point of the liquid can be changed due to the change of the gas pressure value. For example, cooking may be accelerated by increasing the gas pressure within the first cavity and the second cavity, thereby increasing the gas pressure within the first cavity and the second cavity.
- 20 [0263] **Embodiment 5:**
- [0264] As shown in Figs. 1 and 4, a cooking appliance 100 according to a fifth embodiment of the present application includes: a cooking pot 102, a material container 104, a pressure device 110, and a pressure relief structure 112.
- 25 [0265] The material container 104 is at least partially accommodated in the cooking pot 102, a first cavity 106 is formed in the material container 104, a second cavity 108 is formed between the cooking pot 102 and the material container 104, the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid communicating structure is formed between the first cavity 106 and the second cavity 108, and

the liquid communicating structure communicates the first cavity 106 and the second cavity 108; a pressure device 110 is in communication with the first cavity 106 and the second cavity 108, and the pressure device 110 works to generate a pressure difference between the first cavity 106 and the second cavity 108; the pressure relief structure 112 comprises a gas passage connected to
5 at least one of the first cavity 106 and the second cavity 108 to reduce a pressure difference between the first cavity 106 and the second cavity 108.

[0266] Specifically, the pressure relief structure 112 is, but not limited to, the following:

[0267] Case 1: the gas passage is of a normally open structure and the flow area of the gas passage is smaller than the flow area of the pressure device 110 (not shown in the figure).

10 **[0268]** That is, the amount of gas added or removed by the pressure device 110 is greater than the amount of gas leaked or added through the gas passage, ensuring that a pressure difference is created between the first cavity 106 and the second cavity 108, and that the pressure difference created is sufficient to allow the liquid in the second cavity 108 to enter into the first cavity 106.

[0269] Case 2: the pressure relief structure 112 comprises a control member 1122, and the
15 control member 1122 includes a first control valve controlling the connection and disconnection of the gas passage (as shown in Figs. 1, 2, and 3).

[0270] That is to say, when the food 200 to be cooked in the first cavity 106 needs to be washed, the gas passage is disconnected by means of the first control valve to ensure that a sufficient pressure difference is generated between the first cavity 106 and the second cavity 108
20 so that the liquid in the second cavity 108 enters into the first cavity 106 through the liquid communicating structure, and the food 200 to be cooked is washed; after the washing of the food to be cooked 200 in the first cavity 106 is completed, the gas passage is communicated through the first control valve, at which time the pressure difference between the first cavity 106 and the second cavity 108 can be reduced or eliminated so that the liquid in the first cavity 106 flows
25 back to the second cavity 108 through the liquid communicating structure so that the liquid is separated from the food to be cooked 200.

[0271] Case 3: the pressure relief structure 112 comprises a control member 1122 and an exhaust valve 1124, the exhaust valve 1124 comprising an exhaust port and a valve spool, the

control member 1122 controlling the valve spool and causing the valve spool to open or close the exhaust port (as shown in Figs. 4, 5, and 6).

[0272] That is, the exhaust port is formed as at least a portion of the gas passage, and the control member 1122 may control the valve spool to open or close the exhaust port to effect
5 conduction or disconnection of the gas passage to ensure liquid enters into the first cavity 106 or flows back into the second cavity 108.

[0273] Embodiment 6:

[0274] As shown in Figs. 1 and 4, a cooking appliance 100 according to a sixth embodiment of the present application includes: a cooking pot 102, a material container 104, a pressure device
10 110, and a pressure relief structure 112.

[0275] The material container 104 is at least partially accommodated in the cooking pot 102, a first cavity 106 is formed in the material container 104, a second cavity 108 is formed between the cooking pot 102 and the material container 104, the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid
15 communicating structure is formed between the first cavity 106 and the second cavity 108, and the liquid communicating structure communicates the first cavity 106 and the second cavity 108; the pressure device 110 and the pressure relief structure 112 are in communication with one of the first cavity 106 or the second cavity 108 at the same time; the pressure device 110 works to generate a pressure difference between the first cavity 106 and the second cavity 108, and the gas
20 passage of the pressure relief structure 112 reduces the pressure difference between the first cavity 106 and the second cavity 108.

[0276] That is, one of the first cavity 106 and the second cavity 108 is connected to both the pressure relief structure 112 and the pressure device 110. The pressure device 110 may pressurize or depressurize the first cavity 106 or the second cavity 108 connected thereto so that
25 a pressure difference is formed between the first cavity 106 and the second cavity 108; the pressure relief structure 112 may relieve the first cavity 106 or the second cavity 108 connected thereto to reduce the pressure difference between the first cavity 106 and the second cavity 108.

[0277] Specifically, the pressure device 110 and the pressure relief structure 112 include, but are not limited to, the following installations: the pressure relief structure 112 and the pressure

device 110 are in communication with the first cavity 106 at the same time (as shown in Figs. 1-6); the pressure relief structure 112 is in communication with the pressure device 110 and with the second cavity 108 (not shown).

[0278] In this embodiment, further, one of the first cavity 106 and the second cavity 108, which is not is in communication with the pressure relief structure 112 and the pressure device 110, is provided with a gas communicating structure. That is, one of the first cavity 106 and the second cavity 108 is connected to a pressure device 110 that may pressurize or depressurize one of the cavities while the other cavity may balance the pressure difference through a gas communicating structure to reduce the pressure difference between the first cavity 106 and the second cavity 108 (not shown).

[0279] In this embodiment, further, the gas communicating structure includes, but is not limited to, the following:

[0280] Case 1: the gas communicating structure comprises a passage structure, and the passage structure is a normally open structure to ensure the passage of gas. In this case, the flow area of the passage structure is smaller than the flow area of the pressure device 110, ensuring that a pressure difference can be established between the first cavity 106 and the second cavity 108.

[0281] Case 2: the gas communicating structure comprises a passage structure and a one-way valve. In this case, the check valve is closed when it is desired to wash the food 200 to be cooked in the first cavity 106, and opened after the washing is completed.

[0282] Case 3: the gas communicating structure includes a passage structure and a second control valve. In this case, the second control valve is closed when it is desired to wash the food 200 to be cooked in the first cavity 106, and is opened after the washing is completed.

[0283] In this embodiment, further, as shown in Figs. 1 to 6, the cooking appliance 100 comprises a cover body 114, by which at least a partial area of the cooking pot 102 is covered, dust is prevented from falling into the inside of the cooking pot 102, and at the same time, the food 200 to be cooked inside the cooking pot 102 is prevented from splashing and scalding a user.

[0284] In this embodiment, further, the arrangement positions of the gas communicating structure include, but are not limited to, the following cases:

[0285] Case 1: a gas communicating structure is provided in the cover body 114. The forming position of the gas communicating structure is rationally set, and the overall structure of the cooking appliance 100 is simplified (as shown in Figs. 1-6).

[0286] Case 2: the gas communicating structure is provided on the pot handle, and the forming position of the gas communicating structure is rationally set to simplify the overall structure of the cooking appliance 100 (not shown in the figure).

[0287] In particular, when the gas communicating structure is provided on the pot handle, the pot body is provided with a through hole, and the through hole communicates the gas communicating structure and the second cavity 108, so as to ensure that the first cavity 106 and the second cavity 108 balance the gas pressure through the through hole and the gas communicating structure.

[0288] Embodiment 7:

[0289] A cooking appliance 100 according to a seventh embodiment of the present application includes: a cooking pot 102, a material container 104, a pressure device 110, and a pressure relief structure 112.

[0290] The material container 104 is at least partially accommodated in the cooking pot 102, a first cavity 106 is formed in the material container 104, a second cavity 108 is formed between the cooking pot 102 and the material container 104, the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid communicating structure is formed between the first cavity 106 and the second cavity 108, and the liquid communicating structure communicates the first cavity 106 and the second cavity 108; the pressure device 110 and the pressure relief structure 112 are in communication with one of the first cavity 106 or the second cavity 108 at the same time, and the other cavity is a sealed cavity; the pressure device 110 works to generate a pressure difference between the first cavity 106 and the second cavity 108, and the gas passage of the pressure relief structure 112 reduces the pressure difference between the first cavity 106 and the second cavity 108.

[0291] That is, in this embodiment, one of the first cavity 106 and the second cavity 108 is connected to both the pressure device 110 and the gas passage, the other is a sealed cavity, and the sealed cavity is in fluid communication with the other cavity only. During use, pressure is applied or applied through the same cavity so that liquid in the second cavity 108 enters into the first cavity 106 and returns to the second cavity 108.

[0292] Embodiment 8:

[0293] As shown in Figs. 1 to 6, a cooking appliance 100 according to an eighth embodiment of the present application includes: cooking pot 102, a material container 104, a pressure device 110, and a pressure relief structure 112.

[0294] The material container 104 is at least partially accommodated in the cooking pot 102, a first cavity 106 is formed in the material container 104, a second cavity 108 is formed between the cooking pot 102 and the material container 104, the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid communicating structure is formed between the first cavity 106 and the second cavity 108, and the liquid communicating structure communicates the first cavity 106 and the second cavity 108; a pressure device 110 is in communication with the first cavity 106 and the second cavity 108, and the pressure device 110 works to generate a pressure difference between the first cavity 106 and the second cavity 108; the pressure relief structure 112 comprises a gas passage connected to at least one of the first cavity 106 and the second cavity 108 to reduce a pressure difference between the first cavity 106 and the second cavity 108.

[0295] Specifically, the pressure device 110 is in communication with the first cavity 106, and the pressure device 110 includes a gas suction device 1102. The gas suction device 1102 may exhaust air from the first cavity 106 or the second cavity 108 connected to the first cavity 106 or the second cavity 108 by difference between the first cavity 106 and the second cavity 108 so that the liquid in the second cavity 108 enters into the first cavity 106 under the effect of the pressure difference, thereby washing the food 200 to be cooked in the first cavity 106.

[0296] In this embodiment, further, the cooking appliance 100 is provided with a gas inlet, and a cavity communicating with the pressure device 110 is in communication with the gas inlet, ensuring that gas can enter or exit under the action of the pressure device 110 so that a pressure

difference is created between the first cavity 106 and the second cavity 108. Further, the pressure device 110 includes a third control valve 1104 connected to the gas inlet and the suction device 1102 and configured to control the connection and disconnection of the suction device 1102 to the gas inlet. That is, the third control valve 1104 is opened when the pressure device 110 works
5 ensure other flow, and closed when the pressure device 110 does not work.

[0297] Embodiment 9:

[0298] A cooking appliance according to a ninth embodiment of the present application comprises: a cooking pot 102, a material container 104, a pressure device 110, a pressure relief structure 112, and a cover body 114.

10 **[0299]** The material container 104 is at least partially accommodated in the cooking pot 102, a first cavity 106 is formed in the material container 104, a second cavity 108 is formed between the cooking pot 102 and the material container 104, the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid communicating structure is formed between the first cavity 106 and the second cavity 108, and
15 the liquid communicating structure communicates the first cavity 106 and the second cavity 108; the cover body 114 covers at least a part of the area of the cooking pot 102 to prevent dust from falling into the interior of the cooking pot 102 and at the same time to prevent the food 200 to be cooked in the cooking pot 102 from splashing and scalding a user; a pressure device 110 works to generate a pressure difference between the first cavity 106 and the second cavity 108 and a
20 pressure relief structure 112 operable to reduce the pressure difference between the first cavity 106 and the second cavity 108 are provided on the cover body 114.

[0300] That is, the pressure device 110 and the pressure relief structure 112 are integrally provided on the cover body 114, and the forming positions of the pressure device 110 and the pressure relief structure 112 are rationally provided to simplify the overall structure of the
25 cooking appliance 100.

[0301] In this embodiment, further, as shown in Fig. 7, the cover body 114 of the cooking appliance includes a first cover plate 1142 through which the cooking pot 102 and the material container 104 are covered simultaneously. In addition, a first sealing member 116 and a second sealing member 118 are provided on the first cover plate 1142; when the cover body 114 covers

the cooking pot 102, the first sealing member 116 matches with the cooking pot 102 to seal the position where the first cover plate 1142 contacts the cooking pot 102; the second sealing member 118 matches with the material container 104 to seal where the second cover plate contacts the material container 104.

- 5 **[0302]** That is, the cooking appliance according to this embodiment achieves sealing by using a single cover body in cooperation with a double sealing member.

[0303] Embodiment 10:

- [0304]** As shown in Figs. 1 to 6, a cooking appliance 100 according to a tenth embodiment of the present application includes: a cooking pot 102, a material container 104, a pressure device
10 110, a pressure relief structure 112, and a cover body 114.

- [0305]** The material container 104 is at least partially accommodated in the cooking pot 102, a first cavity 106 is formed in the material container 104, a second cavity 108 is formed between the cooking pot 102 and the material container 104, the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid
15 communicating structure is formed between the first cavity 106 and the second cavity 108, and the liquid communicating structure communicates the first cavity 106 and the second cavity 108; the cover body 114 covers at least a part of the area of the cooking pot 102 to prevent dust from falling into the interior of the cooking pot 102 and at the same time to prevent the food 200 to be cooked in the cooking pot 102 from splashing and scalding a user; a pressure device 110 works
20 to generate a pressure difference between the first cavity 106 and the second cavity 108 and a pressure relief structure 112 operable to reduce the pressure difference between the first cavity 106 and the second cavity 108 are provided on the cover body 114.

- [0306]** That is, the pressure device 110 and the pressure relief structure 112 are integrally provided on the cover body 114, and the forming positions of the pressure device 110 and the
25 pressure relief structure 112 are rationally provided to simplify the overall structure of the cooking appliance 100.

[0307] In this embodiment, further, the cooking appliance 100 comprises a cover body 114, and the cover body 114 includes a second cover plate (not shown) covering the cooking pot 102 and a third cover plate (not shown) covering the material container 104. In addition, the second

cover plate is provided with a first sealing member 116, and the third cover plate is provided with a second sealing member 118; during the work of the cooking appliance 100, the second sealing member 118 matches with the cooking pot 102 to seal the position where the second cover plate contacts the cooking pot 102; the third sealing member matches with the material
5 container 104 to seal where the third cover plate contacts the material container 104.

[0308] That is, the cooking appliance 100 according to this embodiment is sealed in such a manner that the double cover body 114 matches with the double sealing member.

[0309] On the basis of embodiments 9 and 10, further, both the first sealing member 116 and the second sealing member 118 are sealing rings, so as to ensure an annular sealing around the
10 periphery of the material container 104 and the cooking pot 102; the first sealing member 116 is nested and distributed outside the second sealing member 118, ensuring the position of the first sealing member 116 and the second sealing member 118, avoiding interference between the first sealing member 116 and the second sealing member 118, and ensuring stable installation of the first sealing member 116 and the second sealing member 118.

[0310] On the basis of embodiment 9 and embodiment 10, further, as shown in Fig. 7, both the first sealing member 116 and the second sealing member 118 are provided on the cover body 114, and the first sealing member 116 and the second sealing member 118 are spaced internally and externally to ensure the stable installation of the first sealing member 116 and the second
15 sealing member 118; in addition, a gas communicating structure is provided on the cover body 114 between the first sealing member 116 and the second sealing member 118, ensuring the positional relationship among the first sealing member 116, the second sealing member 118 and the gas communicating structure, and ensuring that the gas communicating structure can exhaust or inflate the first cavity 106 and the second cavity 108 so as to reduce the pressure difference
20 between the first cavity 106 and the second cavity 108.

[0311] Based on embodiments 9 and 10, further, as shown in Figs. 8, 9, 10 and 11, the material container 104 is configured with a mating surface 1042. During operation of the cooking appliance 100, the second sealing member 118 abuts against the mating surface 1042, ensuring a tight fit of the second sealing member 118 against the mating surface 1042, thus ensuring a sealing effect. In addition, the mating surface 1042 is an annular surface so that the mating
25 surface 1042 of the material container 104 and the annular second sealing member 118 match
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with each other to ensure that all positions on the peripheral side of the material container 104 are sealed; further, as shown in Fig. 11, an extension w of the annular surface from the inner end to the outer end is in the range of 5 mm to 15 mm, and more specifically, in the radial direction of the material container 104, a width value w of the mating surface 1042 is 5 mm to 15 mm, so
5 as to ensure the fitting distance between the second sealing member 118 and the mating surface 1042, and to ensure the sealing effect of the second sealing member 118.

[0312] It is to be understood that the width of the mating surface 1042 may be uniform or non-uniform throughout the circumferential direction of the material container 104, and the width w may be in the range of 5 mm to 15 mm.

10 **[0313]** In certain further examples, the mating surface 1042 has a width value w of 8 mm to 12 mm.

[0314] Of course, the solution is not limited to this, and in other embodiments, the width value w of the mating surface 1042 may be designed as 6 mm, 7 mm, 9 mm, 10 mm, 11 mm, 13 mm, 14 mm, etc. as desired.

15 **[0315] Embodiment 11:**

[0316] As shown in Figs. 1 and 4, a cooking appliance 100 according to an eleventh embodiment of the present application includes: a cooking pot 102, a material container 104, a pressure device 110, a pressure relief structure 112, and a cover body 114.

[0317] The material container 104 is at least partially accommodated in the cooking pot 102, a
20 first cavity 106 is formed in the material container 104, a second cavity 108 is formed between the cooking pot 102 and the material container 104, the first cavity 106 can be used for placing food 200 to be cooked, and the second cavity 108 can be used for storing liquid; a liquid communicating structure is formed between the first cavity 106 and the second cavity 108, and the liquid communicating structure communicates the first cavity 106 and the second cavity 108;
25 a pressure device 110 is in communication with the first cavity 106 and the second cavity 108, and the pressure device 110 works to generate a pressure difference between the first cavity 106 and the second cavity 108; the pressure relief structure 112 comprises a gas passage connected to at least one of the first cavity 106 and the second cavity 108 to reduce a pressure difference between the first cavity 106 and the second cavity 108.

[0318] In this embodiment, further, as shown in Figs. 1 and 4, the cooking pot 102 is provided with a water level indication mark, and the material container 104 is provided with a positioning part 1044.

5 **[0319]** The positioning part 1044 of the material container 104 matches with the cooking pot 102 to ensure a stable positioning of the material container 104 in the cooking pot 102 and at the same time ensure that the material container 104 is partially accommodated in the cooking pot 102. In particular, when the material container 104 is partially housed in the cooking pot 102, the position of the material container 104 is adapted to the position of the corresponding water level indicator, that is, the bottom of the material container 104 is at the same level as or slightly lower
10 than the corresponding water level indicator, ensuring that the food 200 to be cooked in the first cavity 106 is separated from the liquid in the second cavity 108 before the pressure device 110 is not operated, and ensuring that the liquid in the second cavity 108 can enter into the first cavity 106 to come into contact with the food 200 to be cooked after the pressure device 110 is not operated.

15 **[0320]** In this embodiment, further, as shown in Figs. 1 and 4, a liquid communicating structure is provided on the material container 104. The liquid communicating structure specifically comprises a passage; the passage comprises a port 120, and the passage is in communication with the second cavity 108 from the port 120. Specifically, when the positioning part 1044 matches with the cooking pot 102, at least a portion of the ports 120 are positioned
20 below the corresponding water level indicator, i.e., to ensure that liquid can enter into and exit through the liquid communicating structure.

[0321] In this embodiment, further, the liquid communicating structure is formed in a manner including, but not limited to, the following:

25 **[0322]** Case 1: the wall of the material container 104 is provided with one or more through holes through which at least a part of the liquid communicating structure is formed. That is, the liquid communicating structure may be formed extending through the through hole.

[0323] Case 2: material container 104 is provided with a suction pipe formed as at least a part of the liquid communicating structure.

[0324] In this embodiment, the material container 104 is further positioned in a manner that includes, but is not limited to, the following:

[0325] Case 1: a projection part is configured on the inner surface of the cooking pot 102, and the positioning part 1044 of the cooking pot 102 abuts against the projection part, ensuring that
5 the material container 104 is suspended inside the cooking pot 102. That is, it is ensured that liquid inside the second cavity 108 does not enter inside the first cavity 106 before the pressure device 110 is operated (not shown in the figure).

[0326] Case 2: the cooking pot 102 comprises a pot opening, and the positioning part 1044 of the material container 104 abuts against a portion around the pot opening of the cooking pot 102,
10 ensuring that the material container 104 is suspended inside the cooking pot 102. That is, it is ensured that liquid inside the second cavity 108 does not enter inside the first cavity 106 before the pressure device 110 is operated.

[0327] Case 3: material container 104 includes a concave cavity 1046. The concave cavity 1046 is a structure comprising an opening at one end so as to facilitate a user to place the food
15 200 to be cooked in the first cavity 106; the concave cavity 1046 is provided with a flanging along the edge of the opening through which the positioning part 1044 is configured to ensure a stable positioning of the material container 104 within the cooking pot 102. Furthermore, by forming the positioning part 1044 by flanging, the additional positioning part 1044 is avoided, the positioning strength is high, and the manufacturing method is simple (as shown in Fig. 7).

[0328] Further, as shown in Figs. 7, 8, 9, 10, and 11, the flanging is configured with a lower projection that is formed as at least a portion of the positioning part 1044 and rests on the cooking pot 102. That is, the flanging structure is attached to the cooking pot 102 by a lower projection.
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[0329] Further, as shown in Figs. 7, 8, 9 and 10, the concave cavity 1046 comprises a bottom wall 1048 and a side wall 1050, and at least one of the bottom wall 1048 and the side wall 1050
25 is provided with a liquid communicating structure to ensure that the first cavity 106 is in communication with the second cavity 108.

[0330] Further, as shown in Fig. 10, the flanging includes a first arm segment 1052 and a second arm segment 1054. The second arm segment 1054 extends outward to form a positioning

part 1044, and the first arm segment 1052 is located between the second arm segment 1054 and the concave cavity 1046, and abuts against the second sealing member 118, so as to ensure the stable installation of the second sealing member 118.

5 [0331] Further, as shown in Fig. 10, the second arm segment 1054 comprises an upper side and a lower side. The second arm segment 1054 is configured in a concave shape in which an upper side is concave with respect to the first arm segment 1052 and a lower side is convex with respect to the first arm segment 1052, so as to ensure the stable positioning of the material container 104; at least a portion of the surface of the first arm segment 1052 is configured to fit the mating surface 1042 to ensure a tight fit of the second sealing member 118 with the first arm
10 segment 1052.

[0332] In an example, the cooking appliance 100 disclosed herein includes, but is not limited to: an electric a cooker, an electric pressure cooker and a steam cooker.

[0333] Example 1:

15 [0334] As shown in Figs. 1, 2, and 3, the cooking appliance 100 according to the embodiment includes a cover body 114, a pot body, a cooking pot 102, a material container 104, a pressure device 110, and a pressure relief structure 112.

[0335] The cooking pot 102 comprises a pot opening and a water level indication mark for cooking rice; the bottom wall 1048, the side wall 1050, and the opening of the material container 104 have a large planar mating surface 1042 and a positioning part 1044, and the bottom wall
20 1048 of the material container 104 is provided with a port 120. In use, the material container 104 is placed on the cooking pot 102, and positioned by the positioning part 1044, water is placed at a position corresponding to the water level indication mark of the cooking pot 102 so that the outer side wall 1050 of the material container 104, the water surface and the inner side wall 1050 of the cooking pot 102 form a second cavity 108, and the cover body 114, the inner side surface
25 of the material container 104 and the water surface form a first cavity 106.

[0336] The cover body 114 has provided therein a pressure device 110 and a pressure relief structure 112 for varying the gas pressure of the first cavity 106 or the second cavity 108. Here, the pressure device 110 includes a gas suction device 1102 and a third control valve 1104, and

the pressure relief structure 112 includes a control member 1122. Specifically, the third control valve 1104 and the control member 1122 may employ solenoid valves.

[0337] Further, as shown in Fig. 7, the cover body 114 is provided with two concentric seals of different sizes, a first sealing member 116 for sealing the cooking pot 102 and a second sealing member 118 for sealing the first cavity 106 of the material container 104.

[0338] The cooking appliance 100 according to this embodiment operates as follows: the washed rice grains are placed into the material container 104 and placed together in the cooking pot 102; a certain amount of clear water is preset in the cooking pot 102 for cooking, and at this time, the water level does not pass the bottom wall 1048 of the material container 104 and exceeds a certain height, so as to prevent the water level from falling below the bottom wall 1048 of the material container 104 after the rice grains absorb water. The cover body 114 is provided with a pressure device 110 (a vacuum pump and a third control valve 1104) and is in communication with the first cavity 106; a sealing member is provided between the cover body 114 and the material container 104.

[0339] When starting to work, according to the cooking requirements of rice, water is heated to a certain temperature T_0 , then the pressure device 110 is started to reduce the pressure of the first cavity 106, allowing the water surface of the material container 104 to rise through the rice grains, and after rising to a certain height (at least submerging the rice), the operation of the pressure device 110 stops operating, and at the same time, the third control valve 1104 is opened so that the first cavity 106 is in communication with the atmosphere, and allowing the rice grains to fall back; then, the process of water level rising is repeated to make the rice soup rise and fall under the action of pressure to achieve the washing of rice. After the washing, the rice grains and water are separated, and the water level finally falls back below the bottom of the material container 104 by absorbing water of the rice grains during the washing, and then the rice soup is reheated, and the generated hot steam reheats the rice grains in the material container 104.

[0340] With this example, the first cavity 106 is first depressurized (e.g. the pressure of the first cavity 106 is reduced using the pressure device 110), then the first cavity 106 is depressurized (e.g. the third control valve 1104 is opened so that the first cavity 106 is in communication with atmosphere), and the first cavity 106 is returned to zero pressure (zero pressure may be referred to specifically as ambient atmospheric pressure). That is, changing and

adjusting the internal pressure of the first cavity 106 between the negative pressure and the zero pressure can not only achieve a better repeated washing of the food to be cooked in the first cavity 106, achieve the rice-draining cooking function, and have a simpler structure and control form, lower cost, and also save power, which is more conducive to energy saving and emission
5 reduction of the product.

[0341] In addition, the alternating process of the negative pressure and the zero pressure is more conducive to the precipitation of the material to be washed on the surface of the material to be cooked so that the washing effect of the material to be cooked can be further improved.

[0342] Example 2:

10 **[0343]** As shown in Figs. 1 to 6, the cooking appliance 100 according to the embodiment includes a cover body 114, a pot body, a cooking pot 102, a material container 104, a pressure device 110, and a pressure relief structure 112.

[0344] The cooking pot 102 comprises a pot opening and a water level indication mark for cooking rice; the bottom wall 1048, the side wall 1050, and the opening of the material container
15 104 have a large planar mating surface 1042 and a positioning part 1044, and the bottom wall 1048 of the material container 104 is provided with a port 120. In use, the material container 104 is placed on the cooking pot 102, and positioned by the positioning part 1044, water is placed at a position corresponding to the water level indication mark of the cooking pot 102 so that the outer side wall 1050 of the material container 104, the water surface and the inner side wall 1050
20 of the cooking pot 102 form a second cavity 108, and the cover body 114, the inner side surface of the material container 104 and the water surface form a first cavity 106.

[0345] The cover body 114 has provided therein a pressure device 110 and a pressure relief structure 112 for varying the gas pressure of the first cavity 106 or the second cavity 108. Here, the pressure device 110 includes a gas suction device 1102 and a third control valve 1104, and
25 the pressure relief structure 112 includes a control member 1122 and an exhaust valve 1124. Specifically, a solenoid valve is used for the third control valve 1104, an electromagnet is used for the control member 1122, and a ball valve is used for the exhaust valve 1124, and the electromagnet pushes the ball to open a gas passage for pressure relief or pressure supplement.

[0346] Further, a handle is provided on the cooking pot 102, a gas passage is provided inside the handle, a one-way valve is provided inside the passage, and a through hole is provided on the cooking pot 102 corresponding to the handle, and the through hole is in communication with the second cavity 108.

5 **[0347]** Further, the cover body 114 is provided with a through hole, and comprises a gas communicating structure connected to the through hole, wherein the gas communicating structure comprises a solenoid valve, and the solenoid valve has two states of opening and closing the gas communicating structure.

10 **[0348]** Further, the cover body 114 is provided with two concentric seals of different sizes, a first sealing member 116 for sealing the cooking pot 102 and a second sealing member 118 for sealing the first cavity 106 of the material container 104.

15 **[0349]** The cooking appliance 100 according to this embodiment operates as follows: the washed rice grains are placed into the material container 104 and placed together in the cooking pot 102; a certain amount of clear water is preset in the cooking pot 102 for cooking, and at this time, the water level does not pass the bottom wall 1048 of the material container 104 and exceeds a certain height, so as to prevent the water level from falling below the bottom wall 1048 of the material container 104 after the rice grains absorb water. The cover body 114 is provided with a pressure device 110 (a vacuum pump and a third control valve 1104) and is in communication with the first cavity 106; a sealing member is provided between the cover body
20 114 and the material container 104.

[0350] When starting to work, according to the cooking requirements of rice, water is heated to a certain temperature T_0 , then the pressure device 110 is started to reduce the pressure of the first cavity 106, allowing the water surface of the material container 104 to rise through the rice grains, and after rising to a certain height (at least submerging the rice), the operation of the
25 pressure device 110 stops operating, and at the same time, the third control valve 1104 is opened so that the first cavity 106 is in communication with the atmosphere, and allowing the rice grains to fall back; then, the process of water level rising is repeated to make the rice soup rise and fall under the action of pressure to achieve the washing of rice. After the washing, the rice grains and water are separated, and the water level finally falls back below the bottom of the material

container 104 by absorbing water of the rice grains during the washing, and then the rice soup is reheated, and the generated hot steam reheats the rice grains in the material container 104.

[0351] Embodiment 12:

5 **[0352]** As shown in Fig. 12, according to the control method of the cooking appliance of the embodiment for the cooking appliance as described in any one of the embodiments of the first aspect, the control method of the cooking appliance includes the following steps:

[0353] In step S1302, controlling the pressure device to intermittently pressurize or depressurize one of the first cavity and the second cavity.

10 **[0354]** According to the control method of the cooking appliance provided in the above embodiment of the present application, a pressure device is used to intermittently pressurize or depressurize one of a first cavity and a second cavity so that a liquid charge process of guiding a liquid into the first cavity by gas pressure and a liquid discharge process of discharging the liquid from the first cavity by releasing the gas pressure through a gas passage (such as a normally open gas passage or a controlled open gas passage) can be formed in a cooking pot, and the liquid
15 charge process and the liquid discharge process can be alternately formed by the intermittent operation of the pressure device so that materials in the first cavity can be repeatedly washed and good the drained rice cooking effect can be produced. In addition, the definition of the method enables the controllability of the washing and water absorption stage in the whole cooking process to be higher, the control logic to be very simple, the response accuracy and control
20 accuracy can be higher, the working flexibility of the cooking appliance can be better improved, and the cooking taste can be improved.

[0355] In certain examples, for the above-mentioned step of controlling the pressure device to intermittently pressurizing or depressurizing one of the first cavity and the second cavity, in more detail: the gas passage is controlled to be in a closed state during pressurization or
25 depressurization of one of the first cavity and the second cavity by the pressure device.

[0356] As such, the useless work loss of the pressure device can be saved, the working efficiency of the pressure device can be improved, and the liquid inlet of the first cavity can be made more efficient, and the cooking duration can be shortened.

[0357] In certain examples, for the above-mentioned step of controlling the pressure device to intermittently pressurizing or depressurizing one of the first cavity and the second cavity, in more detail: the control gas passage is in an open state during which the pressure device stops pressurizing or depressurizing one of the first cavity and the second cavity.

5 **[0358]** As such, the gas passage can quickly balance the pressure difference between the first cavity and the second cavity so that the first cavity can discharge liquid more efficiently and shorten the cooking time, and at the moment of opening the gas passage, a rapid pressure release effect similar to flashing can be simultaneously formed so that the flow rate of liquid from the surface of the material in the first cavity is higher, the washing effect on the material is better,
10 and the washing effect is further improved.

[0359] It will be understood that examples of the foregoing two aspects may be combined in a non-conflicting manner, for example, by controlling the gas passage to be closed during pressurization or depressurization of one of the first and second cavities by the pressure device; and controlling the gas passage to be in an open state during stop of pressurization or
15 depressurization of one of the first cavity and the second cavity by the pressure device.

[0360] With regard to the examples of the foregoing two aspects, in detail, the pressure relief structure of the cooking appliance comprises a gas passage and a control member that controls the connection and disconnection of the gas passage.

[0361] In more detail, for example, the control member includes a first control valve (for
20 example, a solenoid valve) that controls the connection and disconnection of the gas passage; or the pressure relief structure further includes an exhaust valve, wherein the exhaust valve includes an exhaust port formed as at least a portion of the gas passage and a valve spool adapted to open or close the exhaust port, and the control member controls the valve spool and makes the valve spool to open or close the exhaust port. More specifically, for example, the exhaust valve is a
25 ball pressure valve, and the control member is an electromagnetic push rod that pushes a ball of the ball pressure valve so that the ball opens or closes the exhaust port.

[0362] According to the method, by controlling the control member, the control member controls the conduction or disconnection of the gas passage accordingly. Thus, the control process of the foregoing example can be realized.

[0363] In certain embodiments, prior to the step of controlling the pressure device to intermittently pressurize or depressurize one of the first cavity and the second cavity, the control method of the cooking appliance further comprises: controlling the heating device of the cooking appliance to heat the cooking pot.

5 [0364] The cooking appliance comprises a heating device for heating the cooking pot. For example, the heating device may be an electromagnetic coil, a hot plate, an infrared heating part, etc. By controlling the heating device, the heating process of the cooking pot can be regulated accordingly.

10 [0365] The pressure device is controlled to intermittently pressurize or depressurize one of the first cavity and the second cavity so that the liquid washes the food materials to be cooked, and the heating device is controlled to have a heating process for the cooking pot so that the food materials to be cooked can be washed with hot water, and the washing effect is better, and by controlling the temperature of the washing liquid according to requirements, the washing temperature can be flexibly matched with the washing action so that a richer cooking mode,
15 cooking effect and cooking efficiency can be derived, which also allows the product to better meet the individual needs of different groups of people (e.g. different sugar needs, cooking time needs, etc.).

[0366] The embodiments of controlling the heating device of the cooking appliance to heat the cooking pot before the step of intermittently pressurizing or depressurizing one of the first cavity
20 and the second cavity by the pressure control device are exemplified below by embodiments 13 and 14, respectively.

[0367] **Embodiment 13:**

[0368] As shown in Fig. 13, according to the control method for the cooking appliance of the present embodiment for the cooking appliance as described in any one of the embodiments of the
25 first aspect, the control method for the cooking appliance includes the following steps:

[0369] step S1402, controlling the heating device of the cooking appliance to heat the cooking pot for a preset time length;

[0370] step S1404, controlling the pressure device to intermittently pressurize or depressurize one of the first cavity and the second cavity.

[0371] Specifically, for example, the preset time length can be designed to correspond to the release temperature, specifically, when the preset time length condition is satisfied, the temperature in the cooking pot is just at the release temperature of the substance, such as starch, to be washed out on the food material to be cooked, or the food material to be cooked is heated to a state where the substance, such as starch, is easy to precipitate out, and thereafter, the pressure device is controlled to intermittently pressurize or depressurize one of the first cavity and the second cavity to drive the liquid to be washed out of the food material to be cooked so that the substance, such as starch, to be washed out of the food material to be cooked can be more efficiently and sufficiently, and the washing efficiency and effect can be further improved.

[0372] Alternatively, for example, a preset time length can be designed to correspond to the boiling temperature of the liquid, specifically, when the preset condition of time length is satisfied, the cooking pot is about to boil or just boil or has boiled, and the driving action of the gas pressure can be further assisted by the boiling power so that the pressure device can drive the liquid to be washed by the food material to be cooked more efficiently and improve the washing force, thereby further improving the washing efficiency and effect.

[0373] It can be understood with regard to the embodiment that the preset time length is not a specific value, and a person skilled in the art would have been able to flexibly set the preset time length according to specific requirements according to specific requirements specific food to be heated, etc. or flexibly select the preset time length via a user. For example, the preset time length is set so that the cooking pot is heated to boiling, or the preset time length is set so that the starch substance heated on the rice grains in the cooking pot is most easily removed from the temperature of the rice grains, etc. Here, the scenario requirements and specific preset time length values are not illustrated one by one, but all fall within the scope of protection of this solution without departing from the design concept.

[0374] **Embodiment 14:**

[0375] As shown in Fig. 14, according to the control method of the cooking appliance of the embodiment for the cooking appliance as described in any one of the embodiments of the first aspect, the control method of the cooking appliance includes the following steps:

5 [0376] step S1502, controlling the heating device of the cooking appliance to heat the cooking pot so that the temperature of the medium in the cooking pot rises to a preset temperature threshold value;

[0377] step S1504, controlling the pressure device to intermittently pressurize or depressurize one of the first cavity and the second cavity.

10 [0378] Specifically, for example, the preset temperature threshold can be designed to correspond to the release temperature, specifically, when the preset temperature threshold condition is satisfied, the temperature in the cooking pot is just at the release temperature of the substance, such as starch, to be washed out on the food material to be cooked, or the food material to be cooked is heated to a state where the substance, such as starch, is easy to precipitate out, and thereafter, the pressure device is controlled to intermittently pressurize or
15 depressurize one of the first cavity and the second cavity to drive the liquid to be washed out of the food material to be cooked so that the substance, such as starch, to be washed out of the food material to be cooked can be more efficiently and sufficiently, and the washing efficiency and effect can be further improved.

20 [0379] Alternatively, for example, a preset temperature threshold can be designed to correspond to the boiling temperature of the liquid, specifically, when the preset condition of time length is satisfied, the cooking pot is about to boil or just boil or has boiled, and the driving action of the gas pressure can be further assisted by the boiling power so that the pressure device can drive the liquid to be washed by the food material to be cooked more efficiently and improve the washing force, thereby further improving the washing efficiency and effect.

25 [0380] **Embodiment 15:**

[0381] As shown in Fig. 15, according to the control method of the cooking appliance of the embodiment for the cooking appliance as described in any one of the embodiments of the first aspect, the control method of the cooking appliance includes the following steps:

[0382] step S1602, controlling the pressure device to intermittently pressurize or depressurize one of the first cavity and the second cavity;

[0383] step S1604, controlling the heating device of the cooking appliance to heat the cooking pot.

5 **[0384]** As such, the steam heating process of the food material to be cooked in the first cavity can be realized, which is beneficial to food maturation, and the whole draining cooking process is more orderly, controllable and accurate.

[0385] It will be understood that in certain embodiments, the step of controlling the heating device of the cooking appliance to heat the cooking pot after the step of controlling the pressure
10 device to intermittently pressurizing or depressurizing one of the first cavity and the second cavity may further cause the pressure device to operate or cause the pressure device to not operate.

[0386] For example, the pressure device may be controlled to close, depending on the requirements, for the purpose of saving energy.

15 **[0387]** Alternatively, for example, the pressure device may be controlled to work so that a constant pressure (positive or negative) cooking is established within the cooking pot to meet the pressure cooking requirements.

[0388] Yet alternatively, the pressure may be controlled using a pressure device so that the first cavity is fed air using gas pressure during the steam heating stage to further reduce soaking
20 of the food material in the first cavity.

[0389] As shown in Fig. 30, an embodiment of the third aspect of the present application provides a control device 300 for a cooking appliance, the control device 300 includes: a processor 310 and a memory 320 for storing processor-executable instructions, wherein the processor 310, when executing the executable instructions stored in the memory 320, implements
25 the steps of the control method of the cooking appliance as described in any of the embodiments of the second aspect.

[0390] According to the control device of the cooking appliance provided in the above embodiments, the processor thereof implements the steps of the control method of the cooking

appliance as described in any of the embodiments of the second aspect by executing a computer program, thereby having all the above advantageous effects, which will not be described in detail herein.

5 **[0391]** An embodiment of the fourth aspect of the present application provides a cooking appliance including the control device 300 of the cooking appliance as described in any of the embodiments of the third aspect.

10 **[0392]** According to the cooking appliance provided in the above embodiment, by providing the control device of the cooking appliance as described in any one of the embodiments of the third aspect, all of the above advantageous effects are achieved, and will not be described in detail herein.

15 **[0393]** An embodiment of the fifth aspect of the present application provides a computer readable storage medium on which a computer program is stored, wherein the computer program is adapted to be loaded and executed by a processor, and when the computer program is executed by the processor, the steps of the control method of a cooking appliance as described in any of the embodiments of the second aspect is implemented.

20 **[0394]** According to the computer readable storage medium provided in the above embodiments, the steps of the control method of the cooking appliance as described in any of the embodiments of the second aspect can be implemented by using a computer program stored therein, thereby having all the above advantageous effects, which will not be described in detail herein.

[0395] Embodiment 16:

[0396] As shown in Fig. 16, a cooking appliance according to a sixteenth embodiment of the present application includes: a cooking pot 102', a material container 104', a pressure device 110', and a heating device (not shown).

25 **[0397]** The material container 104' is at least partially accommodated in the cooking pot 102', a first cavity 106' is formed in the material container 104', and a second cavity 108' is formed between the cooking pot 102' and the material container 104', wherein a liquid passage 204' is formed between the first cavity 106' and the second cavity 108', and the liquid passage 204'

communicates the first cavity 106' and the second cavity 108'; a pressure device 110' configured to configure a pressure difference between the first cavity 106' and the second cavity 108', the pressure difference is adapted to drive the liquid in the second cavity 108' into the first cavity 106', and the heating device is configured to heat the cooking pot 102'.

5 **[0398]** The cooking appliance comprises a cooking pot 102' and a material container 104' forming a first cavity 106', wherein a second cavity 108' is formed between the cooking pot 102' and the material container 104', the material container 104' is further provided with a bracket capable of defining a liquid passage from the first cavity 106' to the second cavity 108' so that the liquid of the second cavity 108' enters into the first cavity 106' through the liquid passage,
10 and the liquid of the first cavity 106' returns to the second cavity 108' through the liquid passage, in combination with the pressure device 110' and the control of the pressure device 110' by the control device 110', on one hand, the soaking of the rice grains is achieved by controlling the operation of the pressure device 110', instead of the manual soaking operation of the user in the related art, so as to improve the user's use experience of the cooking appliance; on the other
15 hand, the sugar content in the rice grains to be cooked is reduced by precipitating the sugar in the rice grains, so as to meet the user's cooking demand for low-sugar rice; and on the other hand, it is also advantageous to improve the cooking taste of the rice grains by soaking the rice grains to absorb water, so as to further improve the user's use experience of the cooking appliance.

[0399] The cooking appliance further comprises: a pressure relief structure comprising a first
20 gas passage connected to at least one of the first cavity 106' and the second cavity 108', and when the first gas passage is communicated, the pressure difference between the inside and outside of the first cavity 106' is reduced.

[0400] Specifically, the pressure relief structure is adapted to reduce the pressure difference between the first cavity 106' and the second cavity 108' by controlling to open the pressure relief
25 structure to relieve the pressure in the first cavity 106', after which the liquid in the first cavity 106' can flow back into the second cavity to carry away the precipitated sugar by the liquid flowing back.

[0401] The cooking appliance further comprises: a cavity state detection assembly provided in the material container 104' and/or the cooking pot 102', the water absorption state detection
30 assembly is configured to detect a state parameter of the first cavity 106' and/or the second

cavity 108', and the state detection assembly comprises a temperature sensor, and a liquid level sensor and/or a gas pressure sensor.

5 **[0402]** Specifically, a temperature sensor is used to detect the temperature of the liquid in the first cavity 106' and/or the second cavity 108', and a liquid level sensor and/or a pressure sensor is used to detect whether the liquid level in the first cavity 106' has risen to satisfy the soaking of the rice grains, so as to direct the control of the pressure device 110' and the pressure relief structure through the detection of the liquid level sensor and/or the pressure sensor.

10 **[0403]** In addition, the liquid level sensor may also detect an initial level of the incoming liquid to the second cavity 108' to determine a specific control based on the detection of the initial level to drive the liquid through the pressure device 110' and the pressure release device to carry out a soaking operation and/or a washing operation.

[0404] The cooking appliance further comprises: a liquid drainage device/liquid extraction device, wherein the liquid drainage device is configured to drain liquid from the second cavity 108', and the liquid extraction device is configured to pump liquid from the second cavity 108'.

15 **[0405]** A pressure device 110' connected to the first cavity 106' and adapted to depressurize the first cavity 106' to configure a pressure difference between the first cavity 106' and the second cavity 108'; the pressure relief structure is used to pressurize the first cavity 106', or to communicate the first cavity 106' with the environment, or to communicate the first cavity 106' with the second cavity 108'.

20 **[0406]** A pressure device 110' is connected to the second cavity 108' and adapted to pressurize the second cavity 108' to configure a pressure difference between the first cavity 106' and the second cavity 108'; the pressure relief structure is used to depressurize the second cavity 108', or to place the second cavity 108' in communication with the environment, or to place the first cavity 106' in communication with the second cavity 108'.

25 **[0407]** The liquid passage 204' between the first cavity 106' and the second cavity 108' comprises a communication passage provided on a side wall of the containing body, and the pressure device 110' is connected to the first cavity 106' and/or the second cavity 108' and is adapted to pressurize the first cavity 106' and the second cavity 108' so as to configure a pressure difference between the first cavity 106' and the third cavity; the pressure relief structure

is used to depressurize the first cavity 106' and/or the second cavity 108' or to place the first cavity 106' and/or the second cavity 108' in communication with the environment.

[0408] The pressure device 110' comprises: a second gas passage comprising a first end in communication with either the first cavity 106' or the second cavity 108'; a first control member
5 comprising a first end connected to the second gas passage, the control member is configured to control the second gas passage to open and close; a gas pump 1102' connected to the second end of the control member.

[0409] The first control member comprises a three-way valve, and a third end of the three-way valve is connected to the first gas passage.

10 **[0410]** Alternatively, the first control member includes a fourth control valve 1104', and the pressure relief structure further includes a second control member connected to the first gas passage.

[0411] As shown in Fig. 16, the second control member comprises a fifth control valve 1106', or the second control member comprises an electromagnet 1122' and a ball valve 1124' arranged
15 in cooperation, wherein the electromagnet 1122' can push the ball valve 1124' to open the first gas passage; and in practical applications, the fifth control valve 1106', the electromagnet 1122' arranged in cooperation and the ball valve 1124' may be arranged alternatively.

[0412] The cooking appliance further comprises: an outer cover 50', wherein the outer cover 50' covers at least the cooking pot 102', the pressure device 110' and the pressure relief structure
20 are provided on the outer cover 50'.

[0413] Embodiment 17:

[0414] As shown in Fig. 17, according to the control method of the cooking appliance of the embodiment, the cooking appliance includes a first cavity, the control method includes:

[0415] S202, controlling operation of the pressure device during the water absorption stage in
25 response to the cooking instruction, wherein the pressure device is configured to pressurize or depressurize the first cavity, the first cavity pressurization or depressurization is adapted to feed liquid to the first cavity.

[0416] The first cavity is adapted to store material, and the cooking process comprises a water absorption stage, and during a cooking operation, the operation of the pressure device is controlled to pressurize or depressurize the first cavity to be adapted to drive liquid into the first cavity.

5 **[0417]** In this embodiment, the cooking instructions are configured to control the cooking appliance to carry out a cooking process to enter into the cooking process, the cooking appliance, upon receiving the cooking instructions, first controls the operation of the pressure device, the pressure device is capable of pressurizing or depressurizing the first cavity to achieve positive pressure soaking or a negative pressure soaking of the material before carrying out the heating
10 cooking operation to boil the liquid.

[0418] Specifically, the material comprises rice grains, on one hand, soaking the rice grains is achieved by controlling the operation of the pressure device, instead of the manual soaking operation of the user in the related art, so as to improve the user's use experience of the cooking appliance; on the other hand, the sugar content in the rice grains to be cooked is reduced by
15 enabling the sugar in the rice grains to be precipitated, so as to meet the user's cooking demand for low-sugar rice; and on the other hand, by soaking the rice grains to absorb water, it is also advantageous to improve the cooking taste of the rice grains, so as to further improve the user's use experience of the cooking appliance.

[0419] A person skilled in the art would have been able to understand that the cooking
20 appliance may also have only a first cavity, and before the heating device is controlled to heat the first cavity, the first cavity is pressurized or depressurized to achieve positive pressure soaking or a negative pressure soaking of the material in the first cavity. With such an arrangement structure, the first cavity also directly forms a cooking cavity, and after the soaking operation is completed, the soaking liquid containing the precipitated sugar is discharged, and a subsequent
25 cooking operation is carried out by re-injecting a new liquid to achieve the preparation of low-sugar rice.

[0420] The cooking appliance may also have a plurality of cavities into which liquid can be introduced from other cavities by pressurizing or depressurizing the first cavity to realize immersion of the material.

[0421] Embodiment 18:

[0422] As shown in Fig. 18, according to the control method of the cooking appliance of the embodiment, the cooking appliance includes a first cavity and a second cavity, the control method includes:

- 5 **[0423]** S302, controlling the pressure device to start operation to configure a pressure difference between the first cavity and the second cavity in response to the cooking instruction, the pressure difference being adapted to drive the liquid in the second cavity into the first cavity, as shown in Fig. 26.

- 10 **[0424]** In this embodiment, the cooking appliance comprises a first cavity and a second cavity comprising a liquid passage, the pressure device being arranged to provide a pressure difference between the first cavity and the second cavity by pressurizing or depressurizing the first cavity, the liquid in the second cavity being able to flow into the first cavity driven by the pressure difference.

- 15 **[0425]** Specifically, rice grains are stored in the first cavity, the pressure difference drives the liquid to flow into the first cavity, sugar is precipitated by soaking the rice grains, and if the pressure difference disappears, the liquid can also flow back to the second cavity, so as to separate the precipitated sugar from the rice grains.

- 20 **[0426]** The pressure device may be in direct communication with the first cavity to pressurize or depressurize the first cavity, or may be a pressure device is in communication with the second cavity to pressurize the second cavity to generate a pressure difference between the first cavity and the second cavity, the pressure difference driving fluid into the first cavity to cause the first cavity to achieve positive pressure soaking.

[0427] In some embodiments, S302 may be controlling the pressure device to suck gas from the first cavity to configure the pressure difference.

- 25 **[0428]** S302 may also be controlling the pressure device to exhaust air from the second cavity to configure the pressure difference.

[0429] In this embodiment, the pressure device may comprise a gas suction pump, a gas passage communicating with the first cavity, and a control valve arranged on the gas passage,

and by controlling the operation of the extraction pump and controlling to open the control valve, the first cavity is sucked gas, a pressure difference is formed between the first cavity and the second cavity, and the pressure difference drives the liquid of the second cavity into the first cavity, so as to achieve the negative pressure soaking.

- 5 **[0430]** The pressure device may further include a gas suction pump, a gas passage is in communication with the second cavity, and a control valve provided on the gas passage to discharge the second cavity by controlling the gas pump to operate and controlling the control valve to open, forming a pressure difference between the first cavity and the second cavity, the pressure difference driving the liquid of the second cavity into the first cavity, causing the first
10 cavity to increase in gas pressure and achieve positive pressure soaking.

[0431] In the above embodiment, controlling the operation of the pressure device during the water absorption stage in response to a cooking instruction further comprises: controlling to open the pressure relief structure, wherein the pressure relief structure is configured to relieve pressure from the first cavity.

- 15 **[0432]** In this embodiment, the pressure in the first cavity is released by controlling to open the pressure relief structure, and after the pressure is released, the liquid in the first cavity can return to the second cavity so as to carry out the separation of sugar by the liquid flowing back.

- [0433]** Specifically, the pressure release device is controlled to be opened, and in particular, the control valve on the passage between the first cavity and/or the second cavity and the
20 environment is controlled to be opened so that the first cavity and/or the second cavity returns to normal pressure, and the first cavity soaked in positive pressure is exhausted air, or the first cavity soaked in negative pressure is exhausted air, etc.

- [0434]** Wherein pressure release means that the pressure difference is released so that the pressure difference between the first cavity and the second cavity is eliminated, and the liquid in
25 the first cavity can return from the first cavity to the second cavity under the drive of gravity.

[0435] By controlling the pressure device and the pressure relief structure, the water absorption stage comprises a soaking and water absorption stage and/or a washing and water absorption stage.

[0436] Embodiment 19:

[0437] As shown in Fig. 19, according to the control method of the cooking appliance of the embodiment, the cooking appliance includes a first cavity and a second cavity, and as a simpler implementation, the water absorption stage may include only the soaking and water absorption stage, the control method comprising:

[0438] S402, controlling the pressure device to continue operating in response to the cooking instruction.

[0439] S404, controlling the pressure device to enter into a soaking working mode upon detecting that the operating parameter of the pressure device and/or the state parameter of the first cavity matches the preset immersion detection parameter.

[0440] S406, detecting the duration time length of the pressure device in the soaking working mode in the soaking and water absorption stage.

[0441] S408, controlling to open the pressure relief structure if the duration time length is greater than or equal to the first preset time length.

[0442] S410, controlling to close the pressure relief structure upon detecting that the opening time of the pressure relief structure is greater than or equal to a third preset time length, and/or upon detecting that a state parameter of the first cavity matches a preset fallback detection parameter.

[0443] Wherein, in the soaking working mode, the pressure device is configured to enter into a closed state, or the pressure device is configured to operate at reduced power, or the pressure device is configured to operate intermittently.

[0444] In this embodiment, in order to prevent the pressure difference from being excessive, it is necessary to determine the condition for the pressure device to change the operation state, wherein the change of the operation state comprises closing the pressure device, controlling the pressure device to operate continuously at a reduced power or controlling the pressure device to operate intermittently, so as to stop configuring the pressure difference, or reducing the increase rate of the pressure difference, so as to make the pressure device enter into the soaking working mode.

[0445] The operating parameter of the pressure device may comprise the time for continuous operation of the pressure device to reach a preset time; the state parameter of the first cavity may comprise the gas pressure in the first cavity, the liquid level of the first cavity, etc.; it is detected that the above parameter matches the preset immersion detection parameter, indicating that the pressure device needs to change the operating state; the pressure device is configured to be in a soaking working mode by changing the operating state of the pressure device; and if the soaking working mode is entered, in the process of driving the liquid to flow into the first cavity, the liquid level of the first cavity is stopped from rising, or the speed of the liquid level of the first cavity is reduced so that the rice grains in the first cavity are soaked.

10 [0446] Further, the water absorption stage is further configured to be a soaking and water absorption stage and a washing and water absorption stage by controlling the time length that the soaking working mode is maintained.

[0447] In this embodiment, the water absorption stage comprises a soaking and water absorption stage, and the cold-state soaking of the rice grains in the first cavity is achieved by setting a larger first preset time length, and within the first preset time length, by controlling the pressure device to be in a soaking working mode so that the first cavity is always maintained with a certain amount of liquid.

[0448] In this embodiment, whether the pressure relief structure completes the pressure release operation is determined by detecting the opening time length of the pressure relief structure, and/or detecting parameters such as the gas pressure in the first cavity, the liquid level of the first cavity, etc. for example, by rationally setting a third preset time length, if it is detected that the opening time length is greater than or equal to the third preset time length, the pressure release operation can be considered to be completed, and/or it is detected that the gas pressure of the first cavity returns to normal pressure, the pressure release operation can also be considered to be completed, and/or it is detected that the liquid level of the first cavity drops to a lower liquid level, the pressure release operation can also be considered to be completed, in combination with the connection and disconnection control of the pressure device, the driving operation of soaking the liquid and/or the driving operation of washing the liquid is accurately carried out.

[0449] **Embodiment 20:**

[0450] As shown in Fig. 20, according to the control method of the cooking appliance of the embodiment, the cooking appliance includes a first cavity and a second cavity, and as a simpler implementation, the water absorption stage may include only the washing and water absorption stage, the control method comprising:

5 **[0451]** S502, alternately executing the operations of controlling to open the pressure device and the operation of controlling to open the pressure relief structure during the washing and water absorption stage in response to the cooking instruction.

[0452] S504, if the number of times of opening the pressure device and/or the pressure relief structure is greater than or equal to a preset number of times, controlling the pressure device and
10 the pressure relief structure to close after the pressure relief structure releases pressure from the first cavity; and/or if the duration time length of the washing and water absorption stage is greater than or equal to the second preset time length, controlling the pressure device and the pressure relief structure to close after the pressure relief structure releases pressure from the first cavity.

15 **[0453]** In this embodiment, the water absorption stage comprises a flushing and water absorption stage; by alternately opening a pressure device and a pressure relief structure, the opening pressure device is adapted to configure a pressure difference to drive the liquid into the first cavity, and the opening pressure relief structure is adapted to reduce the pressure difference to drive the liquid to return to the second cavity; by rationally setting the interval time between
20 the operation of the opening pressure device and the operation of the opening pressure relief structure, the liquid is driven to complete one flushing operation on the first cavity, and the rice grains are stored in the first cavity; by carrying out the flushing operation multiple times, the flushing and water absorption of the rice grains is realized, and the sugar precipitated from the rice grains is carried away during the flushing process to achieve the water absorption and sugar
25 reduction of the rice grains.

[0454] In this embodiment, detecting the number of times of opening the pressure device and/or the pressure relief structure can be specifically implemented by detecting the number of times of opening the control valve in the pressure device and/or the control valve in the pressure relief structure, and determining the number of times of flushing operation by detecting the

number of times of opening so as to end flushing control when detecting the number of times of flushing operation is greater than or equal to a preset number of times.

5 [0455] Alternatively, determining when to end the washing control by detecting whether the duration time length of the washing and water absorption stage is greater than or equal to a second preset time length; and by rationally setting the opening times and/or the second preset time length, on one hand, a better washing effect can be obtained, and on the other hand, the water absorption time length can also be rationally controlled so as to ensure that the whole cooking process is not too long.

10 [0456] In some embodiments, S502 may be: the opening of the pressure relief structure is controlled in response to the operation of controlling the pressure device into the soaking working mode during alternate execution.

15 [0457] In this embodiment, by taking the moment when the pressure device is controlled to enter into the soaking working mode as the opening moment of the pressure release device, based on the above description, the moment when the pressure device is controlled to enter into the soaking working mode can be taken as the moment when the driving liquid can completely submerge the material, at this moment, the pressure relief structure is controlled to be opened, the pressure difference is controlled to be reduced so that the liquid falls back under the action of gravity, and the liquid is driven into the first cavity again by re-controlling the pressure device to be opened so as to repeat the flushing operation.

20 [0458] **Embodiment 21:**

[0459] As shown in Fig. 21, according to the control method of the cooking appliance of the embodiment, the cooking appliance includes a first cavity and a second cavity, the water absorption stage may include a soaking and water absorption stage and a washing water absorption stage, and the control method includes:

25 [0460] S602, controlling the pressure device to continue operating in response to the cooking instruction.

- [0461] S604, controlling the pressure device to enter into a soaking working mode upon detecting that the operating parameter of the pressure device and/or the state parameter of the first cavity matches the preset immersion detection parameter.
- 5 [0462] S606, detecting the duration time length of the pressure device in the soaking working mode in the soaking and water absorption stage.
- [0463] S608, controlling to open the pressure relief structure if the duration time length is greater than or equal to the first preset time length.
- 10 [0464] S610, starting alternately executing the operations of controlling to open the pressure device and controlling to open the pressure relief structure in the washing and water absorption stage in response to the operation of closing the pressure relief structure upon detecting that the pressure relief structure completes the pressure release operation in the soaking and water absorption stage.
- 15 [0465] S612, if the number of times of opening the pressure device and/or the pressure relief structure is greater than or equal to a preset number of times, controlling the pressure device and the pressure relief structure to close after the pressure relief structure releases pressure from the first cavity; and/or if the duration time length of the washing and water absorption stage is greater than or equal to the second preset time length, controlling the pressure device and the pressure relief structure to close after the pressure relief structure releases pressure from the first cavity.
- 20 [0466] In this embodiment, after the soaking operation is completed, by controlling the alternative opening of the pressure device and the pressure relief structure, the opening of the pressure device is suitable for configuring a pressure difference to drive the liquid to enter into the first cavity, the opening of the pressure relief structure is suitable for reducing the pressure difference to drive the liquid to return to the second cavity, the washing operation is driven to be
- 25 carried out by rationally setting the interval time between the operation of the opening of the pressure device and the operation of the opening of the pressure relief structure, the rice grains are stored in the first cavity, the washing and water absorption of the rice grains are achieved by carrying out the washing operation several times, and the sugar precipitated in the rice grains is

carried away during the washing process to achieve the water absorption and sugar reduction of the rice grains.

[0467] Specifically, by controlling the pressure device and the pressure relief structure, the liquid is driven to successively carry out a soaking operation and a washing operation on the first cavity, and on one hand, the soaking effect of the rice grains can be improved, and on the other hand, the sugar precipitation rate of the rice grains can be improved, the sugar residue on the surface of the rice grains can be reduced, and thus the cooking effect of the low-sugar rice can be improved.

[0468] Embodiment 22:

[0469] As shown in Fig. 22, according to the control method of the cooking appliance of the embodiment, the cooking appliance includes a first cavity and a second cavity, the water absorption stage may include a soaking and water absorption stage and a washing water absorption stage, and the control method includes:

[0470] S702, controlling the pressure device to continue operating in response to the cooking instruction.

[0471] S704, controlling the pressure device to enter into a soaking working mode upon detecting that the operating parameter of the pressure device and/or the state parameter of the first cavity matches the preset immersion detection parameter.

[0472] S706, detecting the duration time length of the pressure device in the soaking working mode in the soaking and water absorption stage.

[0473] S708, controlling to open the pressure relief structure if the duration time length is greater than or equal to the first preset time length.

[0474] S710, controlling to open the heating device and collecting the water temperature of the first cavity and/or the second cavity upon detecting that the pressure relief structure completes the pressure release operation of the soaking and water absorption stage.

[0475] S712, alternately executing the operations of controlling to open the pressure device and controlling to open the pressure relief structure upon detecting that the water temperature is greater than or equal to the preset washing temperature.

[0476] S714, if the number of times of opening the pressure device and/or the pressure relief structure is greater than or equal to a preset number of times, controlling the pressure device and the pressure relief structure to close after the pressure relief structure releases pressure from the first cavity; and/or if the duration time length of the washing and water absorption stage is greater than or equal to the second preset time length, controlling the pressure device and the pressure relief structure to close after the pressure relief structure releases pressure from the first cavity.

[0477] In this embodiment, when the pressure device and the pressure relief structure are controlled to drive the liquid to carry out a washing operation after the soaking and water absorption is completed, the heating device for heating the first cavity and/or the second cavity can be further controlled to be opened so as to achieve the washing of the first cavity above the normal temperature and below the boiling temperature, on one hand, the boiling time in the later cooking stage can be shortened, on the other hand, the water absorption rate of the rice grains can be further improved so as to achieve uniform heating, and on the other hand, the effect of washing and sugar draining can also be further improved.

[0478] Embodiment 23:

[0479] As shown in Fig. 23, in the above embodiment, before executing S202, the following steps are further included:

[0480] S802, acquiring a level parameter of the second cavity.

[0481] S804, determining that the liquid level of the second cavity is lower than or equal to the bottom surface of the first cavity according to the liquid level parameter, and controlling the pressure device and the pressure relief structure to be operated in the soaking and water absorption stage or the washing and water absorption stage.

[0482] S806, determining that the liquid level of the second cavity is higher than the bottom surface of the first cavity according to the liquid level parameter, and controlling the pressure device and the pressure relief structure to be operated successively in the soaking and water absorption stage and the washing and water absorption stage.

5 [0483] In this embodiment, before entering into the cooking process according to the cooking instruction, the initial liquid level in the second cavity can also be detected, and as shown in Fig. 25, the first state means that the initial liquid level is higher than the bottom surface of the first cavity, i.e., a part of the liquid has entered the first cavity in the initial state, the operation of the pressure device and the pressure relief structure can be controlled so that the cooking appliance enters into the soaking and water absorption stage and the washing and water absorption stage successively, so as to achieve a better water absorption effect.

10 [0484] As shown in Fig. 16, if the initial liquid level is lower than or equal to the bottom surface of the first cavity, it is possible to enter into only the soaking and water absorption stage, or only the washing and water absorption stage so that the water absorption process takes less time and thus the whole cooking process takes less time.

[0485] As shown in Fig. 23, further comprising the following steps:

15 [0486] S808, if the liquid level of the second cavity is higher than the bottom surface of the first cavity, controlling to open the drainage structure and/or the pumping device after ending the water absorbing stage.

[0487] S810, controlling to close the drainage structure and/or the pumping device upon detecting that the liquid level of the second cavity is lower than or equal to the bottom surface of the first cavity.

20 [0488] In this embodiment, if the initial liquid level is higher than the bottom surface of the first cavity, before entering into the cooking stage, in order to prevent the precipitated sugar in the liquid from being re-mixed with the rice grains during the cooking process, it is necessary to carry out a draining operation so as to make the liquid level to be lower than or equal to the bottom surface of the first cavity to ensure the cooking effect.

[0489] Embodiment 24:

25 [0490] As shown in Fig. 24, after S408, S504, S610, S712, S806, and S810, the following steps are further included:

[0491] S902, determining to end the water absorption stage, and controlling the heating device to operate according to the first power during the boiling cooking stage upon detecting that the

duration time length of the water absorption stage is greater than or equal to the preset water absorption time length.

5 **[0492]** S904, determining to end the boiling cooking stage upon detecting that the operation time length of the heating device according to the first power is greater than or equal to the sixth preset time length, and/or upon detecting that the duration time length of the water temperature in the second cavity in the state of being greater than or equal to the boiling temperature is greater than or equal to the seventh preset time length.

[0493] S906, controlling the heating device to continue operating according to the second power in the simmer cooking stage.

10 **[0494]** S908, controlling to close the heating device to end the cooking process upon detecting that the operation time length of the heating device according to the second power is greater than or equal to the eighth preset time.

15 **[0495]** In this embodiment, a preset water absorption time length is set so as to detect whether the duration time length during which the pressure device and the pressure release device operate in the water absorption stage reaches the preset water absorption time length; if the preset water absorption time length is reached, it indicates that the rice grains have reached a better water absorption state; at this time, the heating device is controlled to operate so as to enter into the boiling cooking stage; the heating device is controlled to operate according to the first power so as to heat the second cavity; and the liquid in the second cavity boils and evaporates by heating
20 and enters into the first cavity to achieve the cooking of low-sugar rice.

25 **[0496]** In this embodiment, the heating device is controlled to work for greater than or equal to a sixth preset time length according to the first power, and/or it is detected that when the water temperature in the second cavity continues to be greater than or equal to a seventh preset time length in a state of greater than or equal to the boiling temperature, the rice can be rapidly cooked.

[0497] When it is detected that the above condition is satisfied, the heating power is controlled to be regulated down to the second heating power to carry out the rice cooking operation to enhance the cooking effect of the rice.

[0498] In addition, the heating device is controlled to operate according to the second power for enabling the liquid in the first cavity to continue to be in a heat dissipation state so as to maintain the temperature of the cooked rice.

5 [0499] The heating power is regulated down to a second heating power, which is mainly a stage in which the rice is more fragrant, and in addition to ensuring that the rice grains that are not fully gelatinized during the boiling cooking stage are gelatinized again, lasts for an eighth preset time length (5-20 minutes being optimal), the second power being less than 150 W/s.

[0500] **Example 3:**

10 [0501] As shown in Fig. 27, assuming that the normal temperature is 25°C and the boiling temperature is 100°C, the cooking process includes a soaking and water absorption stage, a boiling stage, and a simmering stage in this order.

15 [0502] The specific implementation process includes: a dosed liquid is injected into the cooking pot according to the liquid level indication line, at this time, the liquid level fails to pass through the bracket on the lower side of a part of the material containing component, but fails to reach the first cavity; as shown in Fig. 16, the rice grains are placed into the first cavity and placed into the cooking pot, a cooking instruction is received, and the pressure device is started (temporarily without heating).

20 [0503] The pressure device exhausts air from the first cavity, depressurizes the first cavity, so as to generate a pressure difference between the first cavity and the second cavity, and the liquid of the second cavity enters into the first cavity through the liquid passage, as shown in Fig. 26, the second state means that the liquid of the second cavity rises to a certain height, and when the liquid rises to a certain height (at least submerging the rice), the pressure device is controlled to stop operating, and the pressure relief structure is opened at the same time so that the first cavity is in communication with the atmosphere, allowing the liquid to fall back, and then repeating the
25 process of rising the liquid level, allowing the liquid to rise and fall continuously under the action of pressure, so as to achieve the soaking of the rice grains; the first soaking process lasts for a first preset time length t_1 (10-30 minutes, allowing the rice to absorb water at normal temperature); after the soaking and water absorption stage is completed, the pressure relief

structure is opened, the pressure difference disappears, and the liquid falls back and separates from the rice; then the heating device is controlled to start entering into the rice steaming stage, and the hot steam generated by heating the liquid reheats the rice in the first cavity; this process lasts for a sixth preset time length t_2 (8-30 minutes), and the temperature in the pot is kept at
5 least between 70-100°C, allowing the rice saturated with the liquid to sufficiently absorb heat and gelatinize; this process is also referred to as a high power boiling cooking stage, where the average process power is greater than 200 watts per second.

[0504] After t_2 , the liquid is heated again to boiling and then enters into a simmering stage, wherein the fragrance of rice grains is mainly stronger, and in addition, it is also ensured that rice
10 grains which have not been completely gelatinized during time t_2 are gelatinized again for an eighth preset time length t_3 (5-20 minutes being optimal), and the average power is less than 150 watts per second.

[0505] Example 4:

[0506] As shown in Fig. 28, assuming that the normal temperature is 25°C and the boiling
15 temperature is 100°C, the cooking process comprises a soaking and water absorption stage, a washing water absorption stage, a boiling stage and a simmering stage in this order.

[0507] The specific implementation process includes: a dosed liquid is injected into the cooking pot according to the liquid level indicator line, the rice grains are placed into the first cavity and placed in the cooking pot, at which time the water level submerges the rice grains, as
20 shown in Fig. 25.

[0508] After receiving the cooking instruction, the water is temporarily not heated, the pressure device is started to exhaust air from the first cavity, the pressure of the first cavity is reduced, and the water surface of the first cavity is allowed to rise through the rice, as shown in Fig. 26, and enters into a static water absorption stage, and after maintaining for a first preset
25 time length T_1 (5-15 minutes), the pressure device is controlled to stop operating.

[0509] The heating device is controlled to start heating the cooking pot until the liquid is heated to a washing preset temperature t (70-100 degrees), and then the pressure device is started again to exhaust air from the first cavity to reduce the pressure of the first cavity, and a pressure

difference is generated between the first cavity and the second cavity so that the water surface of the first cavity rises through the rice, as shown in Fig. 26, after rising to a certain height (at least submerging the rice), the pressure device is controlled to stop operating, and a pressure relief structure is simultaneously opened so that the pressure difference is reduced and the liquid falls back, and then the process of arranging the pressure difference is repeated; the liquid is allowed to continuously rise and fall under the action of generating a pressure difference and reducing the pressure difference, so as to realize the implementation of the washing and soaking stage, and the pressure difference lasts for a second preset time length T2 (10-30 minutes, allowing rice to sufficiently absorb water at normal temperature).

10 **[0510]** After the end of the washing and soaking stage, the pressure relief structure is controlled to open, the pressure difference disappears, and the liquid falls back and separates from the rice. This process is also referred to as a high-power boiling and heating rice steaming stage, with a time length of a sixth preset time length T3 (5-30 minutes), and an average process power $W > 200 \text{ W/s}$. After T3, the liquid is heated again to boiling and then enters into a
15 simmering stage, wherein the fragrance of rice is mainly stronger, and in addition, it is also ensured that the rice grains which have not been completely gelatinized in the T3 stage are gelatinized again for an eighth preset time length T4 (5-20 minutes being optimal), and the average power is less than 150 W/s .

[0511] Embodiment 25:

20 **[0512]** As shown in Fig. 29, the control method of the cooking appliance according to the embodiment comprises:

[0513] S1702, in response to a cooking instruction, controlling operation of a pressure device during a water absorption stage, the pressure device being configured to pressurize or depressurize a first cavity, the first cavity pressurization being adapted to allow positive pressure
25 water absorption of material in the first cavity, the first cavity depressurization being adapted to allow negative pressure water absorption of material in the first cavity.

[0514] S1704, controlling a liquid drainage device and/or a pumping device to start upon detecting that a working parameter of the pressure device satisfies a preset water absorption

treatment condition, wherein the liquid drainage device is configured to drain the first cavity, and the pumping device is configured to pump the first cavity.

5 [0515] In this embodiment, on the premise that the first cavity has been filled with water, the pressure device is set to pressurize or depressurize the first cavity so as to realize the rice grain positive pressure soaking or negative pressure soaking in the first cavity, and it is determined that the water absorption treatment is completed by detecting that the working parameter of the pressure device satisfies the preset water absorption treatment condition, and the liquid drainage device and/or the pumping device are controlled to be started so as to discharge the excessive cooking liquid; on one hand, the rice grain soaking is realized by controlling the operation of the pressure device so as to replace the manual soaking operation of the user in the related art, so as to improve the user's experience in using the cooking appliance; on the other hand, by precipitating the sugar in the rice grains, reducing the sugar content in the rice grains to be cooked so as to meet the user's cooking demand for low-sugar rice, and on the other hand, by soaking the rice grains to absorb water, it is also advantageous to improve the heat uniformity of the rice grains so as to further improve the user's use experience of the cooking appliance.

[0516] In the above embodiment, before controlling the operation of the pressure device in response to the cooking instruction, further comprising: controlling a liquid inlet device configured to introduce a metered amount of liquid into the first cavity to start.

20 [0517] In this embodiment, the introduction of a dosing liquid into the first cavity is achieved by providing a liquid inlet device, the dosing liquid being adapted to meet the soaking water uptake requirements, thereby saving manual handling steps by the user.

[0518] In the above embodiment, further comprises: controlling to open the pressure relief structure upon detecting that the operating parameter satisfies the water absorption treatment condition, wherein the pressure relief structure is configured to release the pressure from the first cavity.

[0519] In this embodiment, the first cavity is brought back to atmospheric pressure by opening the pressure release device to meet the next cooking requirement.

[0520] In the above embodiments, the step of controlling a liquid drainage device to start upon detecting that a working parameter of the pressure device satisfies a preset water absorption

treatment condition, specifically comprises: determining that the working parameter satisfies the water absorption treatment condition upon detecting that the opening time length of the pressure device is greater than or equal to the fourth preset time length, and/or upon detecting that the duration time length of the first cavity at the specified pressure is greater than or equal to the fifth
5 preset time length; controlling the liquid drainage device to start and detecting a liquid level of the first cavity; and controlling the liquid drainage device and/or the pumping device to close upon detecting that the liquid level of the first cavity is lower than or equal to the preset water level.

[0521] In the above embodiments, further comprising: determining to end the water absorption stage, and in a boiling cooking stage, controlling the heating device to start operating according to the first power, and controlling the operation time length of the heating device to be greater than or equal to the sixth preset time length upon detecting that the duration time length of the water absorption stage is greater than or equal to the preset water absorption time length.

[0522] In this embodiment, a preset water absorption time length is set to detect whether the
15 duration time length during which the pressure device and the pressure release device operate in the water absorption stage reaches the preset water absorption time length; if the preset water absorption time length is reached, it indicates that the rice grains have reached a better water absorption state; at this time, the heating device is controlled to operate so as to enter into the boiling cooking stage; the heating device is controlled to operate according to the first power so
20 as to heat the first cavity and maintain the sixth preset time length; and in the process of controlling the heating of the first cavity, the water vapor not containing sugar evaporates into the rice grains, thereby achieving the preparation of low-sugar rice.

[0523] The heating device is controlled to operate according to the first power, so as to maintain the temperature in the cooking pot at least between 70°C and 100°C, allowing the rice
25 saturated with water to sufficiently absorb heat and gelatinize, and this process is also referred to as a boiling heating rice cooking stage with a high power, wherein the first power $W > 200 \text{ W/s}$.

[0524] In the above embodiment, further comprising: determining to end the boiling cooking stage, and controlling the heating device to continue operating according to the second power during the simmering cooking stage upon detecting that the operation time length of the heating
30 device according to the first power is greater than or equal to a sixth preset time length, and/or

upon detecting that the time length of the water temperature in the first cavity in the state of being greater than or equal to the boiling temperature is greater than or equal to a seventh preset time length; and controlling to close the heating device to end the cooking process upon detecting that the operation time length of the heating device according to the second power is greater than or equal to an eighth preset time length.

[0525] In this embodiment, the heating device is controlled to work for greater than or equal to a sixth preset time length according to the first power, and/or it is detected that when the water temperature in the first cavity continues to be greater than or equal to a seventh preset time length in a state of greater than or equal to the boiling temperature, the rice can be rapidly cooked.

[0526] The heating device is controlled to operate according to the first power for heating the liquid in the first cavity to a fast boiling state.

[0527] In addition, the heating device is controlled to operate according to the second power for enabling the liquid in the first cavity to continue to be in a heat dissipation state so as to maintain the temperature of the cooked rice.

[0528] The heating power is regulated down to a second heating power, which is mainly a stage in which the rice is more fragrant, and in addition to ensuring that the rice grains that are not fully gelatinized during the boiling cooking stage are gelatinized again, lasts for an eighth preset time length (5-20 minutes being optimal), the second power being less than 150 W/s.

[0529] When it is detected that the above condition is satisfied, the heating power is controlled to be regulated down to the second heating power to carry out the rice cooking operation to enhance the cooking effect of the rice.

[0530] Embodiment 26:

[0531] As shown in Fig. 30, a control device 300 of a cooking appliance according to an embodiment of the present application includes: a memory 310, a processor 320, and a computer programs stored on the memory 310 and executable on the processor 320.

[0532] Here, the computer program, when executed by the processor 320, can implement the steps of the control method of the cooking appliance according to any one of the above technical

aspects. Accordingly, all the advantageous effects of the control method for the cooking appliance described above will not be set forth herein one by one.

[0533] Embodiment 27:

5 **[0534]** As shown in Fig. 31, a cooking appliance according to one embodiment of the present application includes: a control device 300 of the cooking appliance, a pressure device 160 defined by the above embodiments are connected to the control device, the pressure device 160 being configured to configure a pressure difference between the first cavity and the second cavity, the pressure difference being adapted to drive the liquid in the second cavity into the first cavity.

10 **[0535]** The cooking appliance further comprises: a pressure relief structure 170 comprising a first gas passage connected to at least one of the first cavity and the second cavity, and when the first gas passage is open, a pressure difference between the inside and the outside of the first cavity is reduced.

15 **[0536]** The cooking appliance further comprises: a cavity state detection assembly 180 provided in the material container and/or the cooking pot and connected to the control device 300, wherein the cavity state detection assembly 180 is configured to detect a state parameter of the first cavity and/or the second cavity, the state detection assembly 180 comprises a temperature sensor 1802, a liquid level sensor 1804 and/or a gas pressure sensor 1806.

20 **[0537]** The cooking appliance further comprises: a liquid drainage device and/or liquid extraction device 190 connected to the control device 300, wherein the liquid drainage device is configured to drain liquid from the second cavity and the liquid extraction device is configured to pump liquid from the second cavity.

[0538] The cooking appliance further comprises: a heating device 200 connected to the control device 300, and the heating device is configured to heat the cooking pot.

[0539] Embodiment 28:

25 **[0540]** A cooking appliance according to an embodiment of the present application includes: a cooking pot comprising a first cavity; a control device of the cooking appliance provided by the above embodiment; a pressure device configured to pressurize or depressurize the first cavity, the first cavity pressurization being adapted to cause the material in the first cavity to absorb

water at a positive pressure, the first cavity depressurization being adapted to cause the material in the first cavity to absorb water at a negative pressure; a liquid drainage device and/or a pumping device, wherein the liquid drainage device is configured to drain the first cavity and the pumping device is configured to pump the first cavity.

- 5 **[0541]** The cooking appliance may further comprise a liquid inlet device configured to introduce a dosed liquid into the first cavity.

[0542] The cooking appliance may further include a pressure relief structure configured to release pressure from the first cavity.

- 10 **[0543]** The cooking appliance may further comprise a heating device configured to heat the cooking pot.

- 15 **[0544]** A computer readable storage medium according to one embodiment of the present application, on which a control program of a cooking appliance is stored, wherein when the computer program is executed by a processor, the steps of the control method of the cooking appliance according to any one of the above embodiments of the present application is implemented.

- 20 **[0545]** It will be understood by a person skilled in the art that embodiments of the present application can be provided as a method, device (system) or computer program product. Accordingly, this application may take the form of an entirely hardware embodiment, an entirely software embodiment or an embodiment combining software and hardware aspects. Moreover, the present application can take the form of a computer program product embodied on one or more computer-usable storage media (including, but not limited to, magnetic disk storage, CD-ROM, optical storage, etc.) having computer-usable program code embodied therein.

- 25 **[0546]** The present application is described with reference to flowchart illustrations and/or block diagrams of methods, device (systems), and computer program products according to embodiments of the present application. It will be understood that each flow and/or block of the flowcharts and/or block diagrams, and combinations of flows and/or blocks in the flowcharts and/or block diagrams, can be implemented by computer program instructions. These computer program instructions may be provided to a processor of a general purpose computer, special purpose computer, embedded processor, or other programmable data processing device to

produce a machine so that the instructions, which execute via the processor of the computer or other programmable data processing device, generate devices for implementing the functions specified in the flowchart flow or flows and/or block diagram block or blocks.

5 **[0547]** These computer program instructions may also be stored in a computer-readable memory that can direct a computer or other programmable data processing device to function in a particular manner so that the instructions stored in the computer-readable memory produce an article of manufacture including instruction devices which implement the function specified in the flowchart flow or flows and/or block diagram block or blocks.

10 **[0548]** These computer program instructions may also be loaded onto a computer or other programmable data processing device to cause a series of operational steps to be carried out on the computer or other programmable device to produce a computer implemented process so that the instructions which execute on the computer or other programmable device provide steps for implementing the functions specified in the flowchart flow or flows and/or block diagram block or blocks.

15 **[0549]** It should be noted that in the claims, any reference signs placed between parentheses shall not be construed as limiting the claim. The word “comprising” does not exclude the presence of parts or steps not listed in a claim. The word “a” or “an” preceding an part does not exclude the presence of a plurality of such parts. The application can be implemented by means of hardware comprising several distinct parts, and by means of a suitably programmed computer.
20 In the unit claims enumerating several devices, several of these devices can be embodied by one and the same item of hardware. The use of the words first, second, etc. do not denote any order. These words may be interpreted as names.

25 **[0550]** In this application, the terms “first”, “second” and “third” are used for descriptive purposes only and are not to be construed as indicating or implying relative importance; the term “plurality” means two or more unless explicitly defined otherwise. The terms “mounted”, “connected”, “be connected”, “fixed” and the like are used broadly and should be construed to include, for example, “connected” may be a fixed connection, a detachable connection, or an integral connection; “connected” may be directly connected or indirectly connected through an intermediate. The specific meaning of the above terms in the present application can be
30 understood by a person skilled in the art as the case may be.

[0551] In the description of the present application, it should be understood that the terms “upper”, “lower”, “left”, “right”, “front”, “rear”, and the like indicate orientations or positional relationships based on orientations or positional relationships shown in the drawings, and are only for convenience of description and simplification of description, but do not indicate or
5 imply that the device or unit referred to must have a specific direction, be configured and operated in a specific orientation, and thus, should not be construed as limiting the present application.

[0552] In the description of the present application, the description of the terms “one embodiment”, “some embodiments”, “an example” etc., mean that a particular feature, structure,
10 material, or characteristic described in connection with the embodiment or example is included in at least one embodiment or example of the present application. In this description, the schematic representations of the terms used above do not necessarily refer to the same embodiment or example. Furthermore, the particular features, structures, materials, or characteristics described may be combined in any suitable manner in any embodiment or
15 example.

[0553] The above description is only a preferred embodiment of the present application and is not intended to limit the present application, and various modifications and changes may be made to the present application by a person skilled in the art. Any modification, equivalent replacement, or improvement made within the spirit and principle of the present application shall
20 be included in the protection scope of the present application.

WHAT IS CLAIMED IS:

1. A cooking appliance, comprising:

a cooking pot;

a material container, wherein the material container is at least partially accommodated in the cooking pot, a first cavity is formed in the material container, and a second cavity is formed between the cooking pot and the material container, wherein a liquid communicating structure is formed between the first cavity and the second cavity, and the liquid communicating structure communicates the first cavity and the second cavity;

a pressure device, configured to generate a pressure difference between the first cavity and the second cavity; and

a pressure relief structure, being provided with a gas passage connected to at least one of the first cavity and the second cavity, and reducing a pressure difference between the first cavity and the second cavity when the gas passage is communicated, wherein

the gas passage is of a normally open structure, and

a flow area of the gas passage is smaller than a flow area of the pressure device.

2. The cooking appliance according to claim 1, wherein

the gas passage is in communication with the environment;

when the gas passage is communicated, the first cavity or the second cavity connected to the gas passage is in communication with the environment.

3. The cooking appliance according to claim 1, wherein

the gas passage is connected to the first cavity and the second cavity, respectively, and when the gas passage is communicated, the gas passage communicates the first cavity and the second cavity.

4. The cooking appliance according to any one of claims 1 to 3, wherein

the pressure relief structure further includes a control member that controls the connection and disconnection of the gas passage.

5. The cooking appliance according to claim 4, wherein

the control member includes a first control valve controlling the connection and disconnection of the gas passage; or

the pressure relief structure further includes an exhaust valve, wherein the exhaust valve includes an exhaust port formed as at least a portion of the gas passage and a valve spool adapted to open or close the exhaust port, and the control member controls the valve spool and makes the valve spool to open or close the exhaust port.

6. The cooking appliance according to claim 1 or 2, wherein

one of the first cavity and the second cavity is connected to the pressure relief structure and the pressure device,

the pressure device is adapted to pressurize or depressurize the first or second cavity to which it is connected,

the pressure relief structure is adapted to provide pressure relief to the first cavity or the second cavity connected thereto.

7. The cooking appliance according to claim 6, wherein

one of the first cavity and the second cavity is connected to the pressure device,

the cooking appliance is provided with a gas communicating structure fitted to the other of the first cavity and the second cavity.

8. The cooking appliance according to claim 7, wherein

the pressure device is connected to the first cavity and is adapted to depressurize the first cavity, and the gas communicating structure is in communication with the second cavity and feeds air to the second cavity; or

the pressure device is connected to and adapted to pressurize the second cavity, and the gas communicating structure is in communication with and exhausts air from the first cavity.

9. The cooking appliance according to claim 7, wherein

the gas communicating structure comprises a passage structure,

wherein the passage structure is a normally open structure, or the passage structure is provided with a one-way valve, or the passage structure is provided with a second control valve and the second control valve is adapted to control the connection and disconnection of the passage structure.

10. The cooking appliance according to claim 7, wherein
the gas communicating structure is provided on the cooking pot; or
the cooking appliance includes a cover body at least covering the cooking pot, and the cover body is provided with the gas communicating structure.
11. The cooking appliance according to claim 10, wherein
the cooking pot includes a pot body and a pot handle, at least one of the pot body and the pot handle being provided with the gas communicating structure.
12. The cooking appliance according to claim 11, wherein
the gas communicating structure is provided on the pot handle, the pot body is provided with a through hole, and the through hole communicates the gas communicating structure and the second cavity.
13. The cooking appliance according to claim 6, wherein
one of the first cavity and the second cavity is connected to the pressure device, and the other of the first cavity and the second cavity is a sealed cavity.
14. The cooking appliance according to any one of claims 1 to 3, wherein
the pressure device includes a gas suction device adapted to decompress the first cavity or the second cavity connected to the gas suction device in a gas suction manner,
the cooking appliance is provided with a gas inlet, and one of the first cavity and the second cavity connected to the pressure device is in communication with the gas inlet,
the pressure device further includes a third control valve, wherein the third control valve is connected to the gas inlet and the gas suction device, and controls the connection and disconnection between the gas suction device and the gas inlet.
15. The cooking appliance according to any of claims 1 to 3, wherein
the cooking pot is provided with a water level indication mark,
the material container is provided with a positioning part, the positioning part matches with the cooking pot so that the material container is positioned in the cooking pot, and the position of the material container is adapted to the position of the corresponding water level indication mark.

16. The cooking appliance according to claim 15, wherein

the material container is provided with the liquid communicating structure, the liquid communicating structure includes a passage, the passage includes a port and the passage is in communication with the second cavity from the port, wherein when the positioning part matches with the cooking pot, at least a part of the port is located below the corresponding water level indication mark,

the wall of the material container is provided with one or more through holes, and the through holes are formed as at least a part of the liquid communicating structure; and/or the material container is provided with a suction pipe formed as at least a part of the liquid communicating structure.

17. The cooking appliance according to claim 15, wherein

the material container includes a concave cavity, wherein the concave cavity includes a structure with an opening at one end, a flanging is provided on the concave cavity along an edge of the opening, and the flange is formed as at least a part of the positioning part,

the flanging is configured with a lower projection that rests on the cooking pot; and/or the concave cavity includes a bottom wall and a side wall, and at least one of the bottom wall and the side wall are provided with the liquid communicating structure.

18. The cooking appliance according to claim 17, wherein

the flanging includes a first arm segment and a second arm segment, the first arm segment transitions between the second arm segment and the concave cavity, the second arm segment is configured to form the positioning part, and the first arm segment is adapted to abut against a second sealing member,

the second arm segment includes an upper side and a lower side, and the second arm segment is configured in a concave shape in which the upper side is concave with respect to the first arm segment and the lower side is convex with respect to the first arm segment; and/or at least a part of the surface of the first arm segment is configured as a mating surface against which the second sealing member abuts.

19. A control method of the cooking appliance for the cooking appliance of any one of claims 1 to 18, wherein the control method of the cooking appliance comprises:

controlling the pressure device to intermittently pressurize or depressurize one of the first cavity and the second cavity.