

An Automatic Cooking Machine

Technical Field

The present invention relates to the field of cooking equipment and, in particular, relates to an automatic cooking machine.

5 Background

Cooking, and in particular, Chinese cooking, is a tedious and tiring task. It takes time and effort to master the skills from sourcing, preparing ingredients, cleaning, chopping, frying, stir-frying, stewing and deep-frying, as well as the professional skills of “cooking heat”, “wok breath”, the order and timing control of the ingredients.

10 Automatic cookers have been gaining acceptance and use in home cooking in recent years with their automatic heating, stir-frying and temperature control functions. However, due to the different implementation methods and structures, some existing mini-automatic cookers require all the ingredients to be put in at once and cannot simulate the manual cooking method of sequential ingredient delivery, thereby limiting the type of dishes that can be cooked and rendering unsuitable
15 for cooking and cooking of fresh vegetables. In some cases, the cooking process requires manual input of ingredients one by one according to the prompts of the cookers, which is tedious and fails to achieve complete automation of the cooking process, which leaves much to be desired in terms of consumer experience. Some of the more sophisticated automatic cookers can also imitate the manual cooking process by automatically inputting ingredients in sequence, but they are often large
20 in size and complex in structure and are mostly used in public restaurants or commercial use and are inappropriate for domestic home cooking. In addition, as a daily cooking tool, it is important that automatic cookers are easy to clean. The existing automatic cookers are mainly top-driven mixing devices which are very difficult to disassemble and clean due to the limitations of such structures which greatly limits their common use at home.

25 Summary

According to the present invention, there is an automatic cooking machine according to the present invention which overcomes the problems such as low automation of existing automatic cookers and difficulty in disassembly for cleaning.

The present invention is related to an automatic cooking machine comprises a top cover part
30 1, a cooker body 2 and a raw ingredient container 3; wherein the top cover part 1 is located at the

upper end of the cooker body 2 and can be turned upwards relative to the cooker body 2; wherein the top cover part 1 is provided with a track 4 corresponding to the raw ingredient container 3; wherein the raw ingredient container 3 can be positioned in an inverted position in the track 4 and can slide freely in the track 4; wherein the track 4 is provided with an ingredient receiving opening 7, and the ingredient receiving opening 7 is provided with an automatic film tearing and releasing mechanism 5. The automatic film tearing and releasing mechanism 5 comprises a motor 5-1, a film tearing shaft 5-2 and a clutch gear assembly 6; wherein the motor 5-1 is located on the top cover part 1, and the output shaft of the motor 5-1 is capable of driving the rotation of the film tearing shaft 5-2 through the clutch gear assembly 6; wherein the film reeling rod 5-3 is provided on the film tearing shaft 5-2. The opening of the raw ingredient container 3 is covered with a container film 3-1, and the container film 3-1 is provided with a hole 3-2 connected to the film reeling rod 5-3, with the film tearing shaft 5-2 being coaxially and operably coupled to a connecting shaft 22, and the other end of the connecting shaft 22 is connected with an angle sensor 23 designed to detect the rotation angle of the connecting shaft 22.

Preferably, the rotation angle is for controlling the automatic film tearing and releasing mechanism (5).

Preferably, the raw ingredient container 3 comprises multiple columns of ingredient areas which are divided by fold lines; wherein the ingredient areas comprise a first ingredient trough 9 and a second ingredient trough 10. The first ingredient trough 9 and the second ingredient trough 10 are arranged longitudinally and comprise different transverse widths.

Preferably, the track 4 is provided with a microswitch 4-1 on one side, the first ingredient trough 9 is provided with a first groove 12 on the side opposite to the microswitch 4-1 and the second ingredient trough 10 is provided with a second groove 13 on the opposite to the microswitch 4-1, and the microswitch 4-1 is configured to control the automatic film tearing and releasing mechanism 5.

Preferably, the clutch gear assembly 6 comprises an output gear 6-2, an intermediate gear 6-3, a driven gear 6-4 and a fixed plate 6-5, wherein a gear slide 6-1 is disposed on the fixed plate 6-5, and the intermediate gear 6-3 is capable of sliding within the gear slide 6-1, and the output shaft of the motor 5-1 is securely connected to the output gear 6-2, and the intermediate gear 6-3 is consistently meshed with the output gear 6-2; when tearing the container film, the output shaft of the

motor 5-1 drives the output gear 6-2 in forward rotation, and the intermediate gear 6-3 is slid towards the upper left of the gear slide 6-1 until it meshes with the driven gear 6-4; when releasing the container film, the output shaft of the motor 5-1 drives the output gear 6-2 in backward rotation, and the intermediate gear 6-3 is slid towards the lower right of the gear slide 6-1 until the intermediate
5 gear 6-3 separates from the driven gear 6-4.

Preferably, the cooker body 2 comprises a mixer, a food preparation receptacle 14 and an IH induction heating device 8, wherein the mixer comprises mixing blades, a mixer connecting shaft 17 and a mixer motor 18, wherein the mixer connecting shaft 17 runs through the bottom of the food preparation receptacle 14, and one end of the mixer connecting shaft 17 is connected to the mixing
10 blades located inside the food preparation receptacle 14 and the other end is connected to the mixer motor 18; the IH induction heating device 8 is located below the food preparation receptacle 14 for heating, and the food preparation receptacle 14 is provided with a foldable handle 26.

Preferably, the mixing blades comprise a first mixing blade 15 and a second mixing blade 16, wherein the first mixing blade 15 is positioned against the wall of the food preparation receptacle 14 for stir-frying the ingredients at the wall in an inward direction, and the second mixer blade 16 is
15 positioned against the bottom of the food preparation receptacle 14 for stir-frying the ingredients at the bottom of the food preparation receptacle.

Preferably, the food preparation receptacle 14 comprises a trapezoidal bottom cross-section, the IH induction heating device 8 comprises a coil tray 27, a first toroidal coil 19 and a second toroidal
20 coil 20, wherein the coil tray 27 is designed with a trapezoidal cross-section, and the first toroidal coil 19 is located in the bottom plane of the coil tray 27, which is in contact with the flat bottom part of the food preparation receptacle 14, wherein the second toroidal coil 20 is located in the bottom sloping surface of the coil tray 27, which is in contact with the sloping bottom part of the food preparation receptacle 14.

Preferably, a plurality of temperature sensors 21 are evenly distributed on the coil tray 27, and the temperature sensors 21 is designed to monitor the temperature of the food preparation receptacle 14 at various points.
25

Preferably, the automatic cooking machine further comprises a controller which comprises an automatic cooking machine control management module, a user management module, a shopping
30 mall management module and a recipe management module, and the automatic cooking machine

control management module, user management module, shopping mall management module and recipe management module are electrically connected to the controller, wherein

the automatic cooking machine control management module is configured for Bluetooth connection to external control devices, settings of unique codes for devices, names for devices and addition and deletion of devices; and

the user management module is configured for the user registration, user information, user review and user authority, user shopping cart, user orders, user favorites and reviews; and

the shopping mall management module is configured to manage product information, product classification, product listings, product queries, product inventory, the introduction of product, the removal of product, product delivery, product promotions, user reviews and user sharing; and

the recipe management module is configured for individual recipes, recipe queries, recipe modifications, recipe sharing and recipe collections for each raw ingredient container, and the recipes comprise the names and quantities of ingredients sealably contained in the ingredient troughs, the duration of each cooking step, the induction cooker power setting and the start of cooking.

The present invention is related to an automatic cooking machine with a removable top body, an raw ingredient container that can sealably contain a wide range of ingredients, and an automatic tearing and releasing mechanism that provides efficient and precise control of the "cooking heat", stir-fry and temperature of the ingredients as well as cooking steps, thereby enabling the automatic cooking machine to closely imitate and automate a manual cooking task. It is also equipped with a mixer and an IH induction heating device, which makes the automatic cooking machine easy to clean, and the food materials can be evenly tossed and heated, which provides the automatic cooking machine with work efficiency and a simple structure for mass production. The automatic cooking machine is of compact design, easy to operate and has a minimalistic and elegant appearance.

Illustration of the Drawings

Fig. 1 illustrates the three-dimensional diagram of an embodiment of the present invention;

Fig. 2 illustrates an embodiment of the present invention in a state of use;

Fig. 3 illustrates an automatic cooking machine in an open state according to an embodiment of the present invention;

Fig. 4 illustrates a schematic diagram 1 of a raw ingredient container according to an

embodiment of the present invention;

Fig. 5 illustrates a schematic diagram 2 of a raw ingredient container according to an embodiment of the present invention;

Fig. 6 illustrates a schematic diagram of an automatic film tearing and releasing mechanism
5 according to an embodiment of the present invention;

Fig. 7 illustrates a schematic diagram of a raw ingredient container connected to an automatic film tearing and releasing mechanism according to an embodiment of the present invention;

Fig. 8 illustrates a schematic diagram of an exploded assembly of a top cover part and a cooker body according to an embodiment of the present invention;

10 Fig. 9 illustrates a schematic diagram of a mixer according to an embodiment of the present invention;

Fig. 10 illustrates a schematic diagram of a food preparation receptacle according to an embodiment of the present invention;

15 Fig. 11 illustrates a three-dimensional diagram of an IH induction heating device according to an embodiment of the present invention;

Fig. 12 illustrates an elevation diagram of an IH induction heating device according to an embodiment of the present invention;

Fig. 13 illustrates a partial schematic diagram of a food preparation receptacle according to an embodiment of the present invention;

20 Fig. 14 illustrates a partial schematic diagram of a food preparation receptacle according to an embodiment of the present invention;

Fig. 15 illustrates a schematic diagram of an automatic film tearing and releasing mechanism according to an embodiment of the present invention;

25 Fig. 16 illustrates a schematic diagram of an automatic film tearing and releasing mechanism according to an embodiment of the present invention;

Fig. 17 illustrates a schematic diagram of an angle sensor according to an embodiment of the present invention;

30 In the drawings: 1. Top cover part; 2. Cooker body; 3. raw ingredient container; 3-1. Container film; 3-2. Through-hole; 4. Track; 4-1. Microswitch; 5. Automatic film tearing and releasing mechanism; 5-1. Motor; 5-2. Film tearing shaft; 5-3. Film reeling rod; 6. Clutch gear assembly; 6-1.

Gear track; 6-2. Output gear; 6-3. Intermediate gear; 6-4. Driven gear; 6-5. Fixed plate; 7. Ingredient receiving opening; 8. IH induction heating device; 9. First ingredient trough; 10. Second ingredient trough; 11. Third ingredient trough; 12. First groove; 13. Second groove; 14. Food preparation receptacle; 15. First mixing blade; 16. Second mixing blade; 17. Mixer connecting shaft; 18. Mixer motor; 19. First toroidal coil; 20. Second toroidal coil; 21. Temperature sensor; 22. Connecting shaft; 23. Angle sensor; 24. Operation screen; 25. On/off button; 26. Handle; 27. Coil tray; 28. Type-C connection cable; 29. Clip-in groove; 30. Flat shaft; 31. Top cover; 32. Bracket, 33. Microsensor; 34. Resilient member; 35. Mounting plate; 36. Electrical plug.

Detailed Implementation

The present invention relates to an automatic cooking machine. As shown in Fig. 1 to Fig. 17, an automatic cooking machine comprises a top cover part 1, a cooker body 2, a raw ingredient container 3 and a controller. A top cover 31 is provided on a top cover part 1, and the top cover 31 may be removably attached to the top cover part 1. The top cover part 1 may be removably attached to a cooker body 2, and the top cover part 1 can be turned upwards relative to the cooker body 2. A track 4 is disposed on the top cover part 1 corresponding to raw ingredient container 3, and the raw ingredient container 3 can be attached in an inverted position in the track 4 by a bracket 32 and can slide freely in the track. The bracket 32 is characterized by a rectangular structure with an opening at one end. An ingredient receiving opening 7 is provided in the middle of the track 4 and an automatic film tearing and releasing mechanism 5 is provided at the entrance end of ingredient receiving opening 7, such as for example, at the open end of bracket 32. The automatic film tearing and releasing mechanism 5 is pivotally connected to both sides of track 4. The automatic film tearing and releasing mechanism 5 comprises a motor 5-1, a film tearing shaft 5-2 and a clutch gear assembly 6, wherein the motor 5-1 is securely connected to the top cover part 1, output shaft of motor 5-1 is connected to clutch gear assembly 6, and clutch gear assembly 6 is securely connected to film tearing shaft 5-2, provided with two film reeling rods 5-3. The raw ingredient container 3 may be provided with a container film 3-1. The container film 3-1 is covered by a laminator at the opening of raw ingredient container 3, two through-holes 3-2 are opened in the container film 3-1, and the film reeling rods 5-3 are positioned opposite to through-holes 3-2. The clutch gear assembly 6 comprises an output gear 6-2, an intermediate gear 6-3, a driven gear 6-4 and a fixed plate 6-5. The output shaft of the motor 5-1 is securely connected to the output gear 6-2, and a

gear slide 6-1 is disposed on the fixed plate 6-5. The intermediate gear 6-3 is slidable in the gear slide 6-1, and the film tearing film shaft 5-2 is securely connected to the driven gear 6-4. The intermediate gear 6-3 is constantly meshed with the output gear 6-2, and when releasing the film, the intermediate gear 6-3 is separated from the driven gear 6-4. Specifically, when tearing the film, the motor 5-1 transmits power through the output shaft to the output gear 6-2, and the output gear 6-2 rotates forward to drive the intermediate gear 6-3 to slide up the left side of the gear slide 6-1 to couple with the driven gear 6-4 to drive the film tearing shaft 5-2 to rotate and start winding the film. When releasing the film, the output gear 6-2 rotates backwards to drive the intermediate gear 6-3 to the lower right of the gear slide 6-1 to separate from the driven gear 6-4, leaving the film tearing shaft 5-2 in an unrestricted, free-rotating releasing state, which allows the container film to be manually lifted directly upwards to remove the container film attached to the film tearing shaft 5-2.

The motor 5-1 drives the film tearing shaft 5-2 to rotate and tear the container film 3-1 to move the raw ingredient container 3 to the right of the track 4 which enables the different ingredients to be sequentially placed into the food preparation receptacle. When cooking is completed, the container film 3-1 is attached to the film tearing shaft 5-2 and is removed when it needs to be taken off. The release method of existing automatic cookers involves the operation of a specific release button to drive the motor to reverse, and at the same time manually cooperate with the manual lifting to complete the release of the film which is complicated to operate and the customer experience needs to be improved. In contrast, the automatic film tearing and releasing mechanism according to the present invention automatically drives the motor 5-1 to reverse and drive the output gear 6-2 to disengage from the driven gear 6-4 after the cooking is completed, at this point the film tearing shaft 5-2 can be completely free to rotate, allowing a manual lifting and pulling of the container film 3-1, which is simple and convenient to operate.

The raw ingredient container 3 comprise four rows of ingredient areas, wherein each row of ingredient areas is provided with multiple ingredient slots, each row of ingredient areas is divided by folding lines. The folding lines addresses the problem of the raw ingredient container being susceptible to bending and insufficient strength when divided in a straight line, while the folding line cutting scatters the tearing force which reduces the tearing resistance and makes the tearing process smoother, and also avoids the spattering of ingredients when the ingredients are dumped all at once. The ingredient area on the raw ingredient container 3 in the column closest to the

through-hole 3-2 comprises a first ingredient trough 9 and a second ingredient trough 10, wherein first ingredient trough 9 and second ingredient trough 10 are arranged longitudinally, and first ingredient trough 9 and second ingredient trough 10 are of different transverse widths, and first ingredient trough 9 is wider and can be used to fill liquid ingredients such as oil, soup, etc.; when the
5 tearing of the film is carried out to the wider ingredient compartment but not to the narrower one, the liquid will be poured into the food preparation receptacle first which makes effective use of the space in the raw ingredient container and prevents spattering. A third ingredient slot 11 is provided on the other side of second ingredient trough 10.

The film tearing shaft 5-2 is coaxially and operably coupled to the connecting shaft 22 and can
10 rotate synchronously with the connecting shaft 22; and the other end of the connecting shaft 22 is inserted with an angle sensor 23 which is used to detect the rotation angle of the connecting shaft 22. A micro sensor 33 is also provided to record the rotation angle of the connecting shaft. The micro sensor 33 and the angle sensor 23 are located on the top cover part 1 through a mounting plate 35. The mounting plate 35 is provided with an electrical plug 36 for connecting to the power
15 supply. The micro sensor 33 comprises a resilient member 34 and a microswitch, wherein the microswitch is fixed to the surface of the micro sensor 33 and against the resilient member 34. The resilient member 34 fits into a groove provided on connecting shaft 22 and rotates with shaft 22/
When the groove on the surface of the connecting shaft is in contact with the resilient member on the micro sensor 33, the surface of connecting shaft 22 presses against the resilient member 34 and
20 the resilient member 34 presses against the microswitch; when the groove on the surface of the connecting shaft 22 fits against the resilient member 34 again, the film tearing shaft has completed one revolution. By setting different cumulative rotation angle values of the film tearing shaft 5-2, multiple pause positions are controlled. Specifically, when the raw ingredient container 3 slides to a predetermined pause position and the rotation angle of the film tearing shaft is α (the angle of one
25 revolution is 360° and is cumulative thereafter), the film tearing shaft 5-2 pauses the film and inputs the ingredients, and the cooker performs the corresponding cooking steps of heating and stir-frying, repeating the process in turn until the cooking is finished.

In addition to the above-described control of the cooking process by setting the angle sensor, the cooking function can also be achieved by setting the groove in conjunction with the microswitch.
30 Specifically, a first groove 12 is provided below first ingredient trough 9, a second groove 13 below

second ingredient trough 10, and a corresponding groove below third ingredient slot 11. A microswitch 4-1 is provided on the side of the track 4 opposite the groove such that when tearing the film, the raw ingredient container slides in the track, and the cooker is controlled to pause the film when the groove overlaps the microswitch. In addition, the length of the raw ingredient container is limited by the width of the automatic cooking machine for cleaning purposes, i.e. when the last ingredient area is finished with the film rolling, first ingredient trough 9 is retained in the track 4 for a certain period of time, but the raw ingredient container cannot go beyond the right outer edge line of the cooker body. This is to prevent the steam water and ingredient residue in first ingredient trough 9 from contaminating the housing of the cooker body 2 and the area beyond, which will affect the customer experience. The standstill time may be programmed by the recipe for this reason, the first ingredient trough 9 and the second ingredient trough 10 are designed with different horizontal widths, with the first ingredient trough 9 being wider and generally used for filling liquid ingredients such as oil and soup, and the second ingredient trough 10 being slightly narrower and generally used for filling "stir-fry ingredients".

The cooker body 2 comprises a mixer, a food preparation receptacle 14 and an IH induction heating device 8. The mixer is connected to the food preparation receptacle 14, and the IH induction heating device 8 is removably connected to the bottom of the food preparation receptacle 14 for heating the food preparation receptacle 14. The mixer comprises mixing blades, a mixer connecting shaft 17 and a mixer motor 18, wherein the mixer connecting shaft 17 runs through the bottom of the food preparation receptacle 14, and one end of mixer connecting shaft 17 is connected to the mixing blades located inside food preparation receptacle 14, and the other end is connected to the mixer motor 18. The mixing blades comprise a first mixing blade 15 and a second mixing blade 16. Each of the first mixing blade 15 and second mixing blade 16 is characterized by a curved "plow" cross section. The first mixing blade 15 and second mixing blade 16 are securely connected, and the lower end of the mixer is connected to one end of mixer connecting shaft 17. The other end of mixer connecting shaft 17 is removably connected to the output shaft of mixer motor 18, and the output shaft of mixer motor 18 can drive the mixer connecting shaft 17 to rotate first mixing blade 15 and second mixing blade 16 in food preparation receptacle 14, and the first mixing blade 15 is located against the wall of food preparation receptacle 14 for stir-frying the ingredients in an inward direction, and the second mixing blade 16 is located against the bottom of food preparation

receptacle 14 for stir-frying and flipping the ingredients, thus thoroughly stir-frying the ingredients on the wall as well as on the bottom of the food preparation receptacle 14, and providing even mixing without causing food stacking.

The food preparation receptacle 14 is further provided with a cylindrical projection at the interior bottom, through which the stirrer connecting shaft 17 can be connected to the mixer and the mixer motor 18 respectively, and the cylindrical projection is designed to fix the connection between the mixer, the mixer connecting shaft 17 and the mixer motor 18.

The bottom of the food preparation receptacle 14 is securely connected to the IH induction heating device 8, and the bottom section of the food preparation receptacle 14 is characterized by a trapezoidal shape, with a 45° slope between the bottom surface of the food preparation receptacle and the side wall. This effectively reduces the problem of stir-fry stacking and makes stir-frying process more efficient, more thorough, and which can be completed in a timely manner. The IH induction heating device 8 comprises a coil tray 27, a first toroidal coil 19 and a second toroidal coil 20, wherein the coil tray 27 is characterized by a trapezoidal cross-section, and the coil tray 27 is removably connected to the bottom of the food preparation receptacle. The first toroidal coil 19 is located in the bottom surface of the coil tray 27 which is in contact with the flat bottom part of the food preparation receptacle 14. The second toroidal coil 20 is located in a 45° sloping surface at the bottom of the coil tray 27 which is in contact with the sloping bottom part of the food preparation receptacle 14; first toroidal coil 19 can be used alone or simultaneously with second toroidal coil 20 to provide different cooking powers for the food preparation receptacle.

Multiple temperature sensors 21 are evenly distributed on the coil tray 27. Each of the temperature sensors 21 is designed to monitor the temperature of various points of food preparation receptacle 14. With this curved coil induction heating technology, the coils fit closely to the shape of the food preparation receptacle bottom and provide high thermal efficiency; meanwhile, as the food preparation receptacle is unevenly heated under the influence of induction coils, the temperature values at different points will vary to a certain extent, by adopting the average value of the multi-point temperature to control the temperature change can better reflect the real heating condition of the food preparation receptacle. A multi-point temperature control system is adopted to precisely control the temperature inside the food preparation receptacle without oil fumes, grease or smoke.

The rear side of the top cover part 1 is provided with a downward opening clip-in groove 29, and the rear side of the cooker body 2 is provided with a flat shaft 30 corresponding to the clip-in groove 29. The clip-in groove 29 is mounted upside down on the flat shaft 30, and the inner side of the clip-in groove 29 comprises a stopper pin placed in the stopper pin slide of the cooker body 2. When the top cover part 1 and the cooker body 2 are horizontally aligned, the top cover part 1 can be lifted upwards to be detached from the cooker body 2 or buckled downwards for installation. When the top cover part 1 is flipped upwards or backwards against the cooker body 2, the stopper pin and the stopper pin slide work together to restrain the top cover part 1 from rotating along the flat shaft 30, which is simpler in structure and quicker in disassembly than that of the existing partial disassembly or multi-part disassembly, thereby providing a convenient daily cleaning and use.

The top cover part 1 is connected to the cooker body 2 via a Type-C connection cable 28 for power supply and communication and for easy disassembly. Specifically, one end of the Type-C connection cable 28 is connected to the automatic tearing and releasing mechanism on the top cover part 1, and the other end is connected to the controller inside the cooker body 2.

The food preparation receptacle 14 is provided with a foldable handle 26 which can be folded for storage as well as integrated into the main body of the cooker body 3 for aesthetic purposes. The food preparation receptacle 14 can be removed from the cooker body 2 via the handle 26 for easy dismantling and cleaning. The outer surface of the cooker body 3 is also provided with an operation screen 24 and an On/Off button 25, and the operation screen 24 is designed for selecting the cooking method, cooking time or the like.

The controller is disposed in the cooker body 2, together with WeChat Mini-program "e-AI Smart Stir-Fry Cooking". By scanning the QR code on the raw ingredient container 3, the controller can be connected to control the cooking program of the automatic cooking machine. The first scan of the QR code will add the WeChat Mini-program, and the second scan will automatically activate the WeChat Mini-program to read the recipe information directly.

The controller comprises an automatic cooking machine control management module, a user management module, a shopping mall management module and a recipe management module, and is electrically connected to the automatic cooking machine control management module, the user management module, the shopping mall management module and the recipe management module respectively; wherein

the automatic cooking machine control management module is configured for Bluetooth connection to external control devices, the setting of unique codes for devices, names of devices and the addition and deletion of devices; and

the user management module is configured for user registration, user information, user review
5 and user authority, user shopping cart, user orders, user favorites and reviews; and

the shopping mall management module is configured to manage product information, product classification, product listings, product queries, product inventory, the introduction of product, the removal of product, product delivery, product promotions, user reviews and user sharing; and

the recipe management module is configured for individual recipes, recipe queries, recipe
10 modifications, recipe sharing and recipe collections for each raw ingredient container, and the recipes comprise the names and quantities of ingredients sealably contained in the ingredient troughs, the duration of each cooking step, the induction cooker power setting and the start of cooking, and with features to enable online purchasing of ingredients 'for delivery to customers' homes offline for their convenience.

15 A method of operating an automatic cooking machine according to the present invention comprises the steps of:

opening a top cover of an automatic cooking machine;

turning on the power so as to reset the automatic cooking machine automatically such that
the film reeling rod is facing upwards;

20 placing the raw ingredient container upside down in the track on the top cover part; and

inserting the through-hole into the reeling rod manually;

scanning the QR code on the raw ingredient container;

selecting the recipe to initiate a cooking process according to a set program.

wherein upon initiation of the cooking process based on the selected recipe,

25 the film tearing motor starts to turn forward, and the motor output shaft drives the clutch gear assembly to rotate, the clutch gear assembly drives the film tearing shaft to rotate, thus starting the tearing of the film; during the tearing process, the groove at the opening of the raw ingredient container triggers the microswitch or the angle sensor to record the angle of rotation of the tearing shaft, setting the cumulative angle of the rotation to pause the corresponding raw ingredient
30 container at the groove, which control the corresponding dosage area to place the raw ingredients.

The automatic cooking machine will complete the cooking process according to the set program such as automatic heating, temperature control and stirring; wait until all the ingredients have been put in and well cooked.

5 The cooking process ends when the user opens the top cover part and takes out the finished dish. After cooking, the top cover part can be removed for cleaning.

10 The automatic cooking machine according to the present invention has a removable top body, a raw ingredient container for sealably containing a wide range of ingredients, and an automatic tearing and releasing mechanism that provides efficient and precise control of the "cooking heat", stir-fry and temperature of the ingredients as well as cooking steps, enabling the automatic cooking machine to well imitate a manual automatic cooking task. The automatic cooking machine further comprises a mixer and an IH induction heating device which makes the automatic cooking machine easy to clean, and the food materials can be evenly tossed and heated. Advantages of the automatic cooking machine include high cooking efficiency and a simple structure for mass production. The automatic cooking machine is of compact design, easy to operate and has a
15 minimalistic and elegant appearance.

The present invention is described through detailed implementation examples and it is known to those skilled in the art that various derivations or substitutions of these characteristics and implementations can be made without departing from the idea and scope of this invention. Furthermore, those characteristics and implementations may be tailored to suit specific situations
20 and materials without departing from the idea and scope of this invention. It is therefore that the present invention is not limited by the specific implementations disclosed herein, and all of which should be considered as falling within the scope of protection of the present invention as determined by the claims.

Claimed:

1. An automatic cooking machine comprises a top cover part (1), a cooker body (2) and a raw ingredient container (3); wherein the top cover part (1) is located at an upper end of the cooker body (2) and is capable of being turned upwards relative to the cooker body (2);

wherein the top cover part (1) comprises a track (4) corresponding to the raw ingredient container (3);

wherein the raw ingredient container (3) is configured to be slidably attached to the track (4) in an inverted position; wherein the track (4) comprises an ingredient receiving opening (7) having an entrance end; wherein the automatic cooking machine further comprises an automatic film tearing and releasing mechanism (5) located at the entrance end;

wherein the automatic film tearing and releasing mechanism (5) comprises a motor (5-1), a film tearing shaft (5-2) and a clutch gear assembly (6); wherein the motor (5-1) is located on the top cover body (1); and an output shaft of the motor (5-1) is capable of driving the film tearing shaft (5-2) through the clutch gear assembly (6), and the film tearing shaft (5-2) comprises a film reeling rod (5-3);

wherein an opening of the raw ingredient container (3) is covered with a container film (3-1), wherein the container film (3-1) comprises a through-hole (3-2) connected to the film reeling rod (5-3);

wherein the film tearing shaft (5-2) is coaxially and operably coupled to a connecting shaft (22) at one end of the connecting shaft (22), and the other end of the connecting shaft (22) is connected with an angle sensor (23) for detecting the rotation angle of the connecting shaft (22).

2. The automatic cooking machine according to Claim 1, wherein the rotation angle is for controlling the automatic film tearing and releasing mechanism (5).

3. The automatic cooking machine according to Claim 1, wherein the clutch gear assembly (6) comprises an output gear (6-2), an intermediate gear (6-3), a driven gear (6-4) and a fixed plate (6-5); wherein a gear slide (6-1) is disposed on the fixed plate (6-5), wherein the intermediate gear (6-3) is slidable within the gear slide (6-1), and the output shaft of the motor (5-1) is securely connected to the output gear (6-2), and the intermediate gear (6-3) is constantly meshed with the output gear (6-2) such that:

upon tearing the container film, the output shaft of the motor (5-1) drives the output gear (6-2) in forward rotation, and the intermediate gear (6-3) is slid towards the upper left of the gear slide (6-1) until it meshes with the driven gear (6-4); and

upon releasing the container film, the output shaft of the motor (5-1) drives the output gear (6-2) in backward rotation, and the intermediate gear (6-3) is slid towards the lower right of the gear slide (6-1) until the intermediate gear (6-3) separates from the driven gear (6-4).

4. The automatic cooking machine according to Claim 1, wherein the raw ingredient container (3) comprises a plurality of ingredient sections, separated by fold lines; wherein the plurality of ingredient sections comprise a first ingredient trough (9) and a second ingredient trough (10), wherein the first ingredient trough (9) and the second ingredient trough (10) are arranged longitudinally, and the first ingredient trough (9) and the second ingredient trough (10) have different transverse widths.

5. The automatic cooking machine according to Claim 4, wherein the track (4) is provided with a microswitch (4-1) on one side, and the first ingredient trough (9) is provided with a first groove (12) on the side opposite to the microswitch (4-1), and the second ingredient trough (10) is provided with a second groove (13) on the side opposite to the microswitch (4-1); and the microswitch (4-1) is for controlling the automatic film tearing and releasing mechanism (5).

6. The automatic cooking machine according to Claim 1, wherein the cooker body (2) comprises a mixer, a food preparation receptacle (14) and an IH induction heating device (8), wherein the mixer comprises mixing blades, a mixer connecting shaft (17) and a mixer motor (18), wherein the mixer connecting shaft (17) runs through the bottom of the food preparation receptacle (14), wherein one end of the mixer connecting shaft (17) is connected to the mixing blades located inside the food preparation receptacle (14) and the other end is connected to the mixer motor (18); wherein the IH induction heating device (8) is located below the food preparation receptacle (14) for heating the food preparation receptacle (14); and the food preparation receptacle (14) is provided with a foldable handle (26).

7. The automatic cooking machine according to Claim 6, wherein the mixing blades comprise a first mixing blade (15) and a second mixing blade (16), wherein the first mixing blade (15) abuts the wall of the food preparation receptacle (14) for stir-frying the ingredients at the wall of the food preparation receptacle in an inward direction, and the second mixing blade (16) abuts against the

bottom of the food preparation receptacle (14) for stir-frying and flipping the ingredients at the bottom of the food preparation receptacle upwards.

8. An automatic cooking machine according to Claim 7, wherein the food preparation receptacle (14) comprises a trapezoidal bottom cross-section, wherein the IH induction heating device (8) comprises a coil tray (27), a first toroidal coil (19) and a second toroidal coil (20), wherein the coil tray (27) is characterized by a trapezoidal cross-section, and the first toroidal coil (19) is located in a bottom plane of the coil tray (27), which in contact with a flat bottom part of the food preparation receptacle (14), and the second toroidal coil (20) is located in a bottom sloping surface of the coil tray (27) which is in contact with the sloping bottom part of the food preparation receptacle (14).

9. An automatic cooking machine according to Claim 8, wherein a plurality of temperature sensors (21) are spaced apart from each other on the coil tray (27), and each of the plurality of temperature sensors (21) is configured to monitor the temperature of the food preparation receptacle (14) at various points.

10. An automatic cooking machine according to Claim 1, further comprising a controller, wherein the controller comprises a control management module, a user management module, a shopping mall management module and a recipe management module, wherein the control management module, the user management module, the shopping mall management module and the recipe management module are electrically connected to the controller, wherein the control management module is configured for Bluetooth connection to external control devices, settings of unique codes for devices, names for devices and addition and deletion of devices; and

the user management module is configured for the user registration, user information, user review and user authorization, user shopping cart, user orders, user favorites and reviews; and

the shopping mall management module is configured to manage product information, product classification, product listings, product queries, product inventory, the introduction of product, the removal of product, product delivery, product promotions, user reviews and user sharing; and

the recipe management module is configured for individual recipes, recipe queries, recipe modifications, recipe sharing and recipe collections for each raw ingredient container, and the recipes comprise the names and quantities of ingredients sealably contained in the ingredient troughs, the duration of each cooking step, the induction cooker power setting and the start of cooking.