ABSTRACT

A cooking vessel with a selectively configurable condensation collector. In one configuration, the condensation collector collects condensation impeding it from reaching the content of the cooking vessel. In another configuration, condensation is allowed to reach the content of the cooking vessel. A movable reservoir can be configured to either be flush with the lid preventing condensation from reaching the reservoir or configured to form a gap between the reservoir wall and the lid so that condensation can collect in the reservoir. Alternatively, a condensation collector can be detachably connected to a cooking vessel lid so that when it is attached condensation collects and when it is detached condensation reaches the content of the vessel. Alternatively, a condensation collector can be permanently attached to a replacement cooking vessel lid that is swappable with a conventional cooking vessel lid.
COOKING VESSEL WITH CONDENSATION COLLECTOR

BACKGROUND OF THE INVENTION

[0001] In preparing food, condensation can be beneficial in some circumstances and detrimental in others. Rice is one example of a popular food that can be affected by condensation. There are many different cooking vessels that can be used to cook rice, such as a wok, a pot, or a dedicated rice cooker. One simplistic way to cook rice is to add rice and water to a pot and bring the rice to a boil on a stove. When the rice is boiling, the heat is turned down and the lid is placed on the pot. During cooking, condensation forms and slides down the side walls of the pan, which can be beneficial to the flavor and texture of the rice. After the rice is done cooking, continued exposure to condensation can cause the rice to become soggy. Some other examples of foods where pooled condensation may be objectionable include grains such as oatmeal, soups or stews, and sauces.

[0002] Some pots are designed with a condensation collector (sometimes referred to as a condensation trap or condensation catcher) in order to prevent condensation from returning to the food. One known condensation collector includes a channel along the side wall of the pot. When the lid is in place, condensation can run towards the edge of the lid and down the side wall of the pot into the channel. Condensation in the channel is routed to a pocket located on the side of the pot. This configuration can be effective in ensuring that condensation does not reach the food. However, in some circumstances, it can be desirable to have condensation return to the food.

[0003] Instead of using a special pot to cook rice, some chefs use a conventional pot that allows the condensation to form on the lid and slide down the pot walls during cooking. Then, after cooking is complete, the lid can be removed, a towel can be placed over the pot, and the lid can be replaced. The towel absorbs excess moisture and condensation, helping prevent soggy rice.

[0004] Neither of these solutions adequately deals with all of the issues caused by condensation during and after cooking.

SUMMARY OF THE INVENTION

[0005] One aspect of the present invention provides a cooking vessel with a selectively configurable condensation collector. In one configuration, the condensation collector collects condensation and does not allow it to reach food in the cooking vessel. In another configuration, the condensation collector does not collect condensation and does allow it to reach food in the cooking vessel. The ability to selectively configure the condensation collector allows a cook to decide whether condensation should reach the food in the cooking vessel or whether condensation should be collected and not allowed to reach the food.

[0006] In one embodiment, the condensation collector is integrated with the handle of a cooking vessel lid. The condensation collector may include a reservoir and a connector. In one embodiment, the connector is a shaft and the handle includes a receptacle for receiving the shaft. The condensation collector can be positioned relative to the cooking vessel lid by moving the shaft with respect to the receptacle. In a retracted position, the reservoir walls of the condensation collector are flush against the cooking vessel lid forming a seal, such that condensation forming on the cooking vessel lid cannot collect in the reservoir. In an extended position, the reservoir walls of the condensation collector are unsealed from the cooking vessel lid, such that condensation forming on the cooking vessel lid can collect in the reservoir. The condensation collector may include an interface for selectively changing between the retracted position and the extended position. The interface may be capable of changing the condensation collector from a retracted position to an extended position without removing the cooking vessel lid from the cooking vessel.

[0007] In one embodiment, the cooking vessel lid is concave so that condensation that forms on the cooking vessel lid has a tendency to travel toward the center of the lid due to gravity. That is, when in place, the cooking vessel lid may bow toward the bottom of the cooking vessel. In embodiments where the condensation collector is integrated with the handle of a cooking vessel lid and the condensation collector is retracted, condensation will tend to flow around the external walls of the reservoir outside of the condensation collector and eventually fall onto any food in the cooking vessel near the center of the cooking vessel. When the condensation collector is extended, condensation is free to flow along the lid closer toward the center of the cooking vessel and eventually fall near the center of the cooking vessel into the condensation collector reservoir.

[0008] Another aspect of the present invention provides a cooking vessel that is selectively configurable between a condensation collector mode and a condensation return mode. In one embodiment, the condensation collector includes a reservoir for collecting condensation and a connector for connecting the reservoir to the cooking vessel lid. In one embodiment, the connector may be permanently attached to the cooking vessel lid. In an alternative embodiment, the connector may be selectively detachable from the cooking vessel lid. In embodiments with the condensation collector permanently attached to the lid, when condensation collection is not desired, the cooking vessel lid may be replaced with a cooking vessel lid that does not include a condensation collector. In embodiments with a detachable condensation collector, when condensation collection is not desired, the condensation collector may be detached.

[0009] These and other features of the invention will be more fully understood and appreciated by reference to the description of the embodiments and the drawings.

[0010] Before embodiments of the invention are explained in detail, it is to be understood that the invention is not limited to the details of operation or to the details of construction and the arrangement of the components set forth in the following description or illustrated in the drawings. The invention may be implemented in various other embodiments and of being practiced or being carried out in alternative ways not expressly disclosed herein. Also, it is to be understood that the phraseology and terminology used herein are for the purpose of description and should not be regarded as limiting. The use of "including" and "comprising" and variations thereof is meant to encompass the items listed thereafter and equivalents thereof as well as additional items and equivalents thereof. Further, enumeration may be used in the description of various embodiments. Unless otherwise expressly stated, the use of enumeration should not be construed as limiting the invention to any specific order or number of components. Nor should the use of enumeration be construed as excluding from
the scope of the invention any additional steps or components that might be combined with or into the enumerated steps or components.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a side view of one embodiment of a cooking vessel with a selectively configurable condensation collector.

[0012] FIG. 2 is an exploded view of the cooking vessel.

[0013] FIG. 3 is an exploded view of the selectively configurable condensation collector.

[0014] FIG. 4 is a perspective top view of the selectively configurable condensation collector.

[0015] FIG. 5 is a side sectional view of the interior lid of the cooking vessel with the condensation collector in a retracted position.

[0016] FIG. 6 is a close-up side sectional view of the condensation collector in a retracted position.

[0017] FIG. 7 is a close-up side sectional view of the condensation collector in an extended position.

DESCRIPTION OF CURRENT EMBODIMENTS

[0018] A cooking vessel incorporating an embodiment of the present invention is shown in FIGS. 1-2, and generally designated 10. In the current embodiment, the cooking vessel 10 generally includes a double lid pot 12 and a thermal shroud 14. The double lid pot 12 includes an exterior lid 16 and an interior lid 18. In the current embodiment, a condensation collector 20 is integrated with the handle 22 of the interior lid 18. In the current embodiment, the condensation collector 20 is selectively configurable between a first position where the condensation collector collects condensation and a second position where the condensation collector does not collect condensation.

[0019] For purposes of disclosure, the present invention is described primarily in the context of a specific cooking vessel. The present invention is not, however, limited to use with the specific cooking vessel described herein. Rather, the present invention may be incorporated into essentially any cooking vessel that might benefit from selectively configurable condensation collection or a cooking vessel lid condensation collector.

[0020] Directional terms, such as “top,” “bottom,” “upper,” “lower,” “above,” “below,” “inner,” “outward,” “outer” and “outwardly,” are used to assist in describing the invention based on the orientation of the embodiments shown in the illustrations. The use of directional terms is intended to facilitate disclosure and should not be interpreted to limit the invention to the illustrated orientation(s).

[0021] In the current embodiment, the cooking vessel 10 includes a rice pot 12 that is designed especially to cook delicious tasting rice but can also accommodate a variety of cooking needs and is suitable for most cuisine. The rice pot 12 can be used on most common cooktops including induction cooktops that have an automatic rice cooking mode. The rice pot 12 may include side handles 13 that are ergonomically designed and comfortable to use.

[0022] The cooking vessel of the current embodiment can enhance the VITALOK\textsuperscript{TM} cooking method whereby little water or oil is added. The current embodiment of the cooking vessel is well suited for “wet” cooking and can be used for a variety of cooking methods and foods where high levels of water are present inclusive of soups, stews, rehydration of dried foods, boiled potatoes etc. When used for wet cooking, less boil over and spatter will be experienced by the user. The size of the rice pot is one factor that for achieving delicious tasting rice with the target amount of dried rice cooked. Smaller and taller pots sizes can compress the rice as it cooks damaging the rice shape and texture. A pot that is too wide can cook the rice into a dry state and can lose too much heat causing the cooked rice to cool too quickly.

[0023] The depicted rice pot 12 utilizes a multi-ply construction. The rice pot can be made from a variety of materials including stainless steel, multi-ply stainless steel, copper clad or other metals. A nonstick coating may be applied. In one embodiment, rice pot has a heavy gauge stainless steel construction with an 18/8 stainless steel interior. The rice pot may have a large radius at the union of the sidewall and bottom to enhance stirring, traditional handling of cooked rice such as flipping, and serving. The present invention may be incorporated into alternative rice pot constructions, or a different cooking vessel altogether.

[0024] The rice pot 12 of the current embodiment is a dual lid rice pot. The recessed interior lid 18 of the current embodiment can prevent spatter while cooking due to the concave design especially when used in conjunction with the exterior lid. More specifically, the recessed concave lid design can prevent boil over and spatter that is somewhat common when cooking rice in pots with convex lids in the standard position. The concave interior lid 18 can also help to return the flavor essence of the rice within the steam back into rice that is being cooked. That is, the interior lid is designed to promote the return of steam condensation to the rice when cooking, which can help return volatile flavor components back to the rice. The interior lid may include a handle 22. In some embodiments, such as the embodiment shown in FIGS. 1-2, a condensation collector 20 may be incorporated into the interior lid handle 22. The condensation collector will be discussed in more detail below. Although the current embodiment includes a concave design, it is not necessary. Alternative embodiments may include a lid with a convex shaped lid, flat lid, or some other shaped lid.

[0025] The interior lid 18 of the current embodiment can be constructed from stainless steel, other metals, or glass, such as fortified glass. Fortified glass can assist in collecting steam generated during thermal insulation, so the rice does not become soggy, and it maintains great flavor and texture after being cooked.

[0026] The rice pot 12 may also include an exterior lid 16. The exterior lid can be either a single or dual wall lid. The external lid 16 can be constructed from 18/8 stainless steel or other material and can be designed to hold air and accumulate heat. In embodiments with an exterior dual wall lid, the dual wall may utilize air as an insulator or a different or additional insulator may be included to enhance thermal retention or another characteristic of the lid. For example, the insulation could be fiberglass, foam, or some other type of insulation.

[0027] Sometimes rice is done cooking before it is ready to be eaten and can be placed in a thermal shroud to keep it warm. A thermal shroud can create an air gap between the rice pot exterior and the thermal shroud. By combining the rice pot 12 with the thermal shroud 14, rice or other food can be held at the appropriate temperature and can be preserved without any heat source. The bottom of thermal shroud may be covered with silicone to avoid slipping.

[0028] A dual wall exterior lid in combination with a thermal shroud can assist in keeping cooked rice warm after
cooking. The shroud creates an air space between the rice cooking pot and the shroud to retain the temperature of the cooked rice. The shroud may be another cooking pot, serving bowl, or another accessory designed to create the thermal air gap. The thermal shroud may have a dual wall to further enhance thermal retention. The thermal shroud may have silicone or other material added as an exterior cap on the base to aid in handling the container, prevent slippage and discourage use on a cooktop. The thermal shroud may include handle 15.

[0029] Referring to FIG. 3, an exploded view of the condensation collector 20 and the handle 22 of the interior lid 18 is shown. The condensation collector 20 and the handle 22 interact to make the condensation collector selectively configurable between a condensation collection mode and a condensation return mode. In condensation collection mode, condensation is collected and not allowed to reach the food in the cooking vessel. In condensation return mode, condensation is allowed to reach the food in the cooking vessel.

[0030] The handle 22 includes a handle portion 24, a base portion 26, and two washers 28. The handle 22 can be assembled by positioning the two washers 28 to sandwich the portion of the interior lid 18 surrounding aperture 30 defined by the interior lid 18. The base portion 26 can just through the aperture 30 and screw into the handle portion 24 to secure the handle 22 to the interior lid 18. In alternative constructions, the handle portion 24 and the base portion 26 may be joined differently using essentially any suitable fastener. In other embodiments, the handle may be an integrally formed with interior lid 18. In the current embodiment, the handle 22 includes an receptacle 32 for receiving the condensation collector. In alternative embodiments, the receptacle 32 for receiving the condensation collector may be located elsewhere in the cooking vessel. Alternatively, the condensation collector 20 may connect to the cooking vessel in a different manner, without the use of a receptacle.

[0031] In the current embodiment, the condensation collector 20 includes a shaft 34 for connecting the condensation collector 20 to the receptacle 32 of the handle 22 and a reservoir 38 for collecting condensation. The depicted shaft 34 includes two oversized portions. One oversize portion 40 is located at the end of the shaft 34 and the other oversize portion 42 is located near the middle of the shaft. The two oversize portions 40, 42 of the shaft 34 provide two friction fit positions with the ridge 44 located in the receptacle 32 of the handle 22.

[0032] FIG. 4 is a perspective view of the handle portion 24 of the interior lid handle 22. The handle includes a body portion 48 that defines a portion of the receptacle 32 and a grip portion 46. The body portion 48 and grip portion 46 of the handle may be constructed of a polymer or any material with sufficient heat resistance to protect the hand of the user who may grasp the handle during use. When the condensation collector 20 is in the retracted position, that is the condensation return mode, the oversize portion 40 of shaft 34 can be seen jutting through the receptacle 32 forming a button. Pressing the button, that is pressing the tip of the shaft 34, causes the condensation collector 20 to move to the extended position, that is it causes the condensation collector to enter condensation collection mode. In the current embodiment, the condensation collector can be returned to the retracted position by removing the inner lid 18 and pressing the bottom of the condensation reservoir while holding the inner lid 18 in a fixed position. In alternative embodiments, the shaft 34 of the condensation collector may not submerge below the portion of the receptacle 32 defined by the body portion 48 so that the shaft 34 could be pulled upwards, without removing the inner lid 18. In other alternative embodiments, in addition to not submerging, the shaft 34 may include a knob or other interface to facilitate pulling the condensation catcher 20 upwards. Although the current embodiment includes a direct interface with the shaft of the condensation collector 20, in other, alternative embodiments movement of the condensation collector from one position to another may be provided in a different manner.

[0033] Perhaps as best shown in FIG. 5, the condensation collector 20 can be installed in the handle 22 by friction fitting the shaft 34 into the receptacle 32 of the handle 22. The portion of the receptacle 32 defined by the base portion 26 of the handle 22 includes a ridge 44 for restricting movement of the shaft 34 of the condensation collector. The condensation return mode and the condensation collection mode of the selectively configurable condensation collector are described in more details in connection with FIGS. 6 and 7.

[0034] Referring to FIG. 6, the condensation collector 20 is depicted in condensation return mode. The condensation collector is in a retracted position with the walls of the reservoir 38 engaged with the interior lid 18. In this position, the oversize portion 42 of the shaft 34 is catching on the ridge 44 of the receptacle 32 restricting downward movement of the condensation collector 20. Upward movement of the condensation collector 20 is restricted by the engagement of the walls of the reservoir 38 with the interior lid 18. In some embodiments, the walls of the reservoir may be angled such that when the condensation collector is moved to the retracted position, the walls of the reservoir have a tendency to deform to the interior lid 18 and can provide a tension that tends to keep the condensation collector 20 in the retracted position.

[0035] Condensation return mode can be useful in some circumstances, for example while cooking rice. Referring to FIG. 5, which also shows the condensation collector 20 in condensation return mode, as the rice is cooked, condensation forms on the bottom surface of the interior lid 18, and due to the concave curvature of the interior lid, condensed water runs toward the center of the bottom surface of the lid. As water approaches the walls of the condensation reservoir 38, it generally runs around the perimeter of the wall and onto the bottom surface of the condensation reservoir. Eventually, the water drops, due to gravity, on the center of the food being cooked. By returning the condensed water to the center of the rice, the rice’s flavor can be enhanced and its freshness can be retained.

[0036] Referring to FIG. 7, the condensation collector is depicted in condensation collection mode. The condensation collector 20 is in an extended position with the walls of the reservoir 38 disengaged from the interior lid 18. In this position, the oversize portion 40 of the shaft 34 is catching on the ridge 44 of the receptacle 32 restricting downward movement of the condensation collector 20. Upward movement of the condensation collector 20 may be slightly restricted by the oversize portion 42 engaging the walls of the receptacle 32.

[0037] Condensation collection mode can be useful in some circumstances, for example after rice has finished cooking, but before it is ready to be served. Even after the heat is removed from the cooking vessel, condensation can form on the bottom surface of the interior lid 18, and due to the concave curvature of the lid, condensed water runs toward the center of the bottom surface of the lid. Because the conden-
The condensation collector 20 in the current embodiment is constructed from a flexible material that allows the friction fit positioning and also allows a tight seal to be made between the wall of the reservoir 38 and the interior lid 18. The condensation collector 20 can be made from polymer, such as silicone rubber, or essentially any material capable of withstanding the heat applied within the cooking vessel. In alternative embodiments, the reservoir may be constructed from a rigid material. In an embodiment with a rigid reservoir, the inner lid may include a rubber gasket or other sealing assistant structure so that a tight seal may be formed between the rigid reservoir and the rigid reservoir. In alternative embodiments, the shaft may be constructed from a rigid material and a different fastener system may be employed. In some embodiments, the shaft may be deleted entirely and a different fastener system altogether may be utilized. The condensation collector 20 may be replaced as needed in the event of shape distortion, tearing or wear.

In the current embodiment, the reservoir 38 includes three relief holes 50 to ensure that the reservoir does not become vacuum sealed to the inner lid while in condensation return mode. The relief holes also help keep condensation from entering the reservoir during condensation return mode. Without the relief holes, condensation that travels toward the center of the lid and hits the reservoir wall can be "sucked" into the reservoir instead of traveling down the outside of the wall. The relief holes 50 are large enough to allow air into the reservoir and prevent suction, but are small enough so that water does not leek through them onto the food.

In another aspect of the present invention, the cooking vessel is selectively configurable between a condensation collector mode and a condensation return mode. In some embodiments, the condensation collector 20 may interact with different cooking vessel components to make the condensation collector selectively configurable between condensation collector mode and condensation return mode. For example, in one embodiment, the handle of the interior lid 18 may be located elsewhere on the lid or removed altogether and a dedicated condensation collector interface may replace it. In other embodiments, the condensation collector may not interact with the interior lid at all. For example, a convex interior lid may be combined with a selectively retractable channel in the side wall of the cooking vessel that can selectively provide a condensation collector mode and a condensation return mode. In other embodiments, the cooking vessel includes two interchangeable lids, one with a condensation collector and one without a condensation collector. In yet another alternative embodiment, the condensation collector is selectively detachable from the cooking vessel.

The above description is that of current embodiments of the invention. Various alterations and changes can be made without departing from the spirit and broader aspects of the invention as defined in the appended claims, which are to be interpreted in accordance with the principles of patent law including the doctrine of equivalents. Any reference to claim elements in the singular, for example, using the articles "a," "an," "the" or "said," is not to be construed as limiting the element to the singular. It is to be understood that the invention disclosed and defined herein extends to all alternative combinations of two or more of the individual features mentioned or evident from the text and/or drawings. All of these different combinations constitute various alternative aspects of the present invention. The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A cooking vessel lid comprising:
   a surface for covering a cooking vessel, wherein condensation is capable of forming on the surface;
   a reservoir for collecting at least a portion of the condensation, said reservoir having a wall;
   a connector for connecting the reservoir to the surface.

2. The cooking vessel lid of claim 1 wherein the reservoir is movable between a retracted position with the wall of the reservoir flush against the surface and an extended position with a gap between the wall of the reservoir and the surface.

3. The cooking vessel lid of claim 2 wherein the cooking vessel lid is concave and the reservoir is located near the center of the of the cooking vessel lid such that, in the retracted position, condensation that forms on the cooking vessel lid has a tendency to travel toward the center of the lid around the external wall of the reservoir, and such that, in the extended position, condensation that forms on the cooking vessel lid has a tendency to travel toward the center of the lid without being hindered by the reservoir wall.

4. The cooking vessel lid of claim 1 wherein the reservoir is selectively configurable between a condensation collector mode and a condensation return mode.

5. The cooking vessel lid of claim 4 including an interface for selecting condensation collector mode or condensation return mode.

6. The cooking vessel lid of claim 5 wherein the interface is capable of being actuated while the cooking vessel lid is in place on a cooking vessel.

7. The cooking vessel lid of claim 1 further comprising a handle, wherein the connector is a shaft and the handle includes a receptacle for receiving the shaft.

8. The cooking vessel lid of claim 1 wherein the connector permanently joins the reservoir to the surface and the cooking vessel lid is a replacement cooking vessel lid capable of selectively replacing a cooking vessel lid incapable of collecting condensation.

9. The cooking vessel lid of claim 1 wherein the connector detachably connects the reservoir to the surface, and the cooking vessel lid is selectively configurable between a condensation return lid by detaching the reservoir from the surface and a condensation collector lid by attaching the reservoir to the surface such that there is a gap between the wall of the reservoir and the surface for condensation to travel.

10. A cooking vessel assembly comprising:
    a cooking vessel; and
    a cooking vessel lid having:
    a surface for covering the cooking vessel, wherein condensation is capable of forming on the surface;
    a reservoir for collecting at least a portion of the condensation, said reservoir having a wall; and
    a connector for connecting the reservoir to the surface.
11. The cooking vessel assembly of claim 10 wherein the reservoir is movable between a retracted position with the wall of the reservoir flush against the surface and an extended position with a gap between the wall of the reservoir and the surface.

12. The cooking vessel assembly of claim 11 wherein the reservoir includes one or more relief holes.

13. The cooking vessel assembly of claim 11 wherein the cooking vessel lid is concave and the reservoir is located near the center of the cooking vessel lid such that, in the retracted position, condensation that forms on the cooking vessel lid has a tendency to travel toward the center of the lid around the wall of the reservoir, and such that, in the extended position, condensation that forms on the cooking vessel lid has a tendency to travel toward the center of the lid without being hindered by the reservoir wall.

14. The cooking vessel assembly of claim 10 wherein the reservoir is selectively configurable between a condensation collector mode and a condensation return mode.

15. The cooking vessel assembly of claim 14 including an interface for selecting condensation collector mode or condensation return mode.

16. The cooking vessel assembly of claim 15 wherein the interface is capable of being actuated while the cooking vessel lid is in place on the cooking vessel.

17. The cooking vessel assembly of claim 10 including a cooking vessel lid handle, wherein the connector is a shaft and the handle includes a receptacle for receiving the shaft.

18. The cooking vessel assembly of claim 10 wherein the connector permanently joins the reservoir to the surface and the cooking vessel lid is a replacement cooking vessel lid capable of selectively replacing a cooking vessel lid incapable of collecting condensation.

19. The cooking vessel assembly of claim 10 wherein the connector detachably connects the reservoir to the surface, and the cooking vessel lid is selectively configurable between a condensation return lid by detaching the reservoir from the surface and a condensation collector lid by attaching the reservoir to the surface such that there is a gap between the wall of the reservoir and the surface for condensation to travel.

20. A cooking vessel assembly comprising:
   a cooking vessel;
   a cooking vessel lid; and
   a selectively configurable condensation collector, wherein said condensation collector is selectively configurable between a first configuration where the condensation collector impedes condensation from reaching content of the cooking vessel and a second configuration where the condensation collector allows condensation to reach content of the cooking vessel.

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