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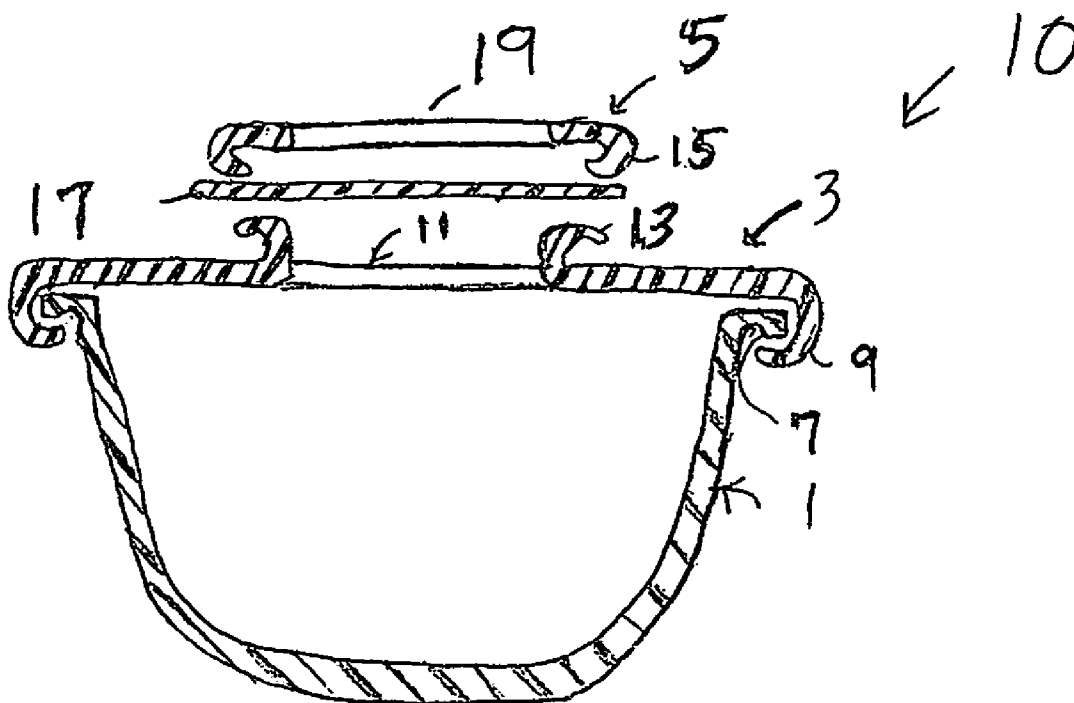
(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0043093 A1**
Cox et al. (43) **Pub. Date: Mar. 2, 2006**(54) **COOKING APPARATUS AND METHOD OF USE****Publication Classification**(76) Inventors: **Shirley Jean Cox**, Ontario (CA); **Tyler Thomas Douglas Cox**, Ontario (CA)(51) **Int. Cl.**
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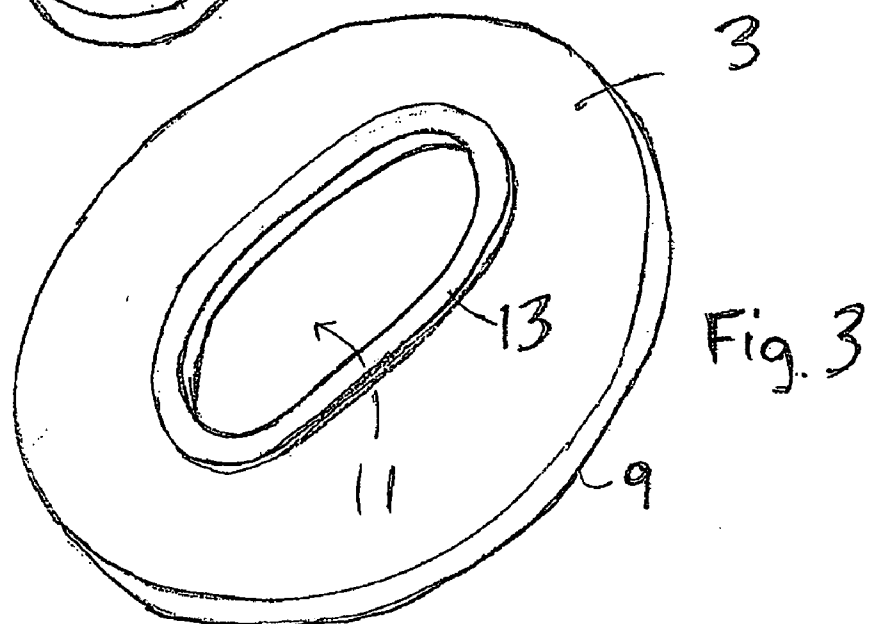
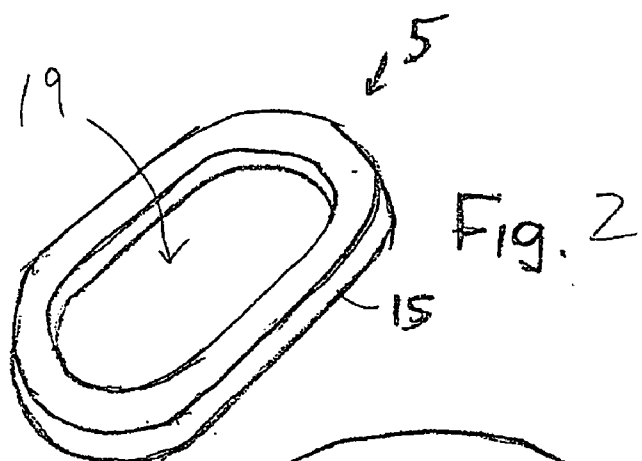
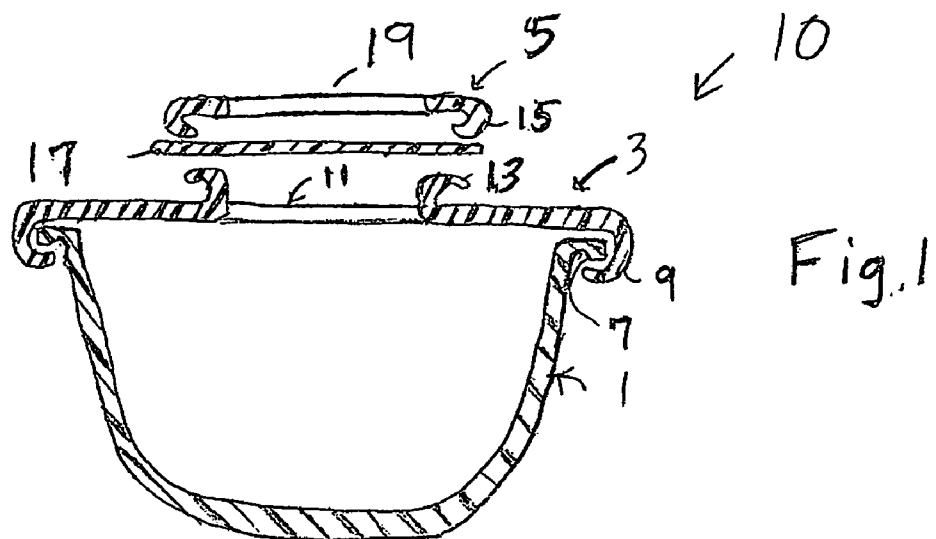
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WASHINGTON, DC 20005 (US)(57) **ABSTRACT**(21) Appl. No.: **11/213,985**(22) Filed: **Aug. 30, 2005****Related U.S. Application Data**

(60) Provisional application No. 60/606,118, filed on Sep. 1, 2004.

A cooking apparatus combines an open top container, a lid adapted to attach to the container and an opening in the lid for placement of a venting film over the opening. The venting film and lid maintain the seal of the container, with the venting film allowing for pressure relief. The venting film can be retained over the opening using a second lid or other attachment device, or be part of the first lid. The apparatus can include additional lids to seal the container, or seal the opening in the first lid.





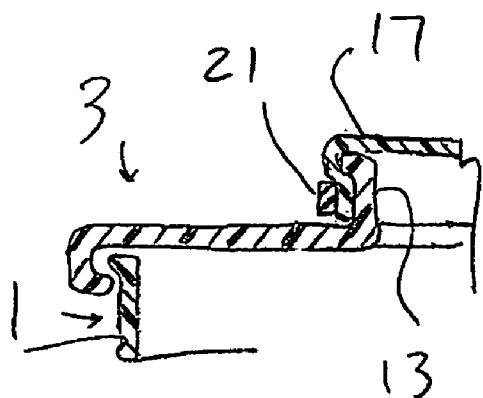


Fig. 4

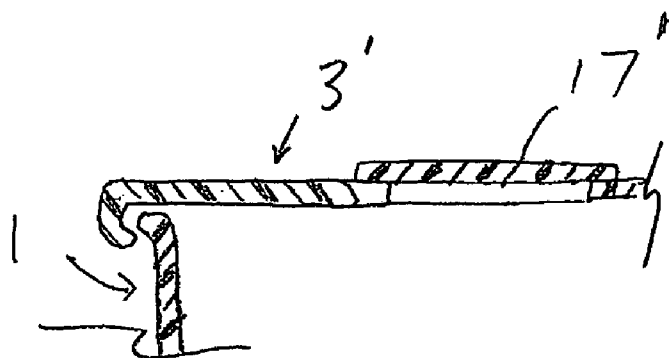


Fig. 5

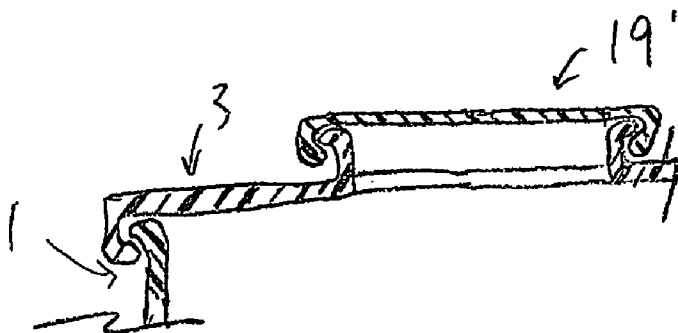


Fig. 6

COOKING APPARATUS AND METHOD OF USE

[0001] This application claims priority under 35 USC 119(e) from provisional application No. 60/606,118 filed on Sep. 1, 2004, which is herein incorporated in its entirety by reference.

FIELD OF THE INVENTION

[0002] The present invention is directed to a cooking apparatus, and in particular, to an apparatus having a container and specially configured lids to allow for the use of a venting film during microwave cooking.

BACKGROUND ART

[0003] In the prior art, venting films and bags for microwave cooking are disclosed in U.S. Published Patent Application Nos. 2004/0069157, 2004/0103989, 2005/0003150, and 2005/0040161 to Lin, each of which are herein incorporated in its entirety by reference. For example, the film in 2004/0103989 is designed so that when a pressure differential exists, the film becomes air and vapor permeable. It is also very common to cook food in plastic containers such as Tupperware or disposable Gladware, and their use for leftovers and reheats is prevalent in peoples' lives.

[0004] One problem with disposable or other plastic containers during microwave cooking is that in order to avoid "splattering" inside the microwave oven, one must keep the lid on. This does not work well as pressure can build up in the container and the lid can blow off. The practicality of lifting the lid at one corner to relieve pressure does not assist in evenly heating the food product.

[0005] While vented films and bags provide a number of advantages over containers when microwave cooking, often times, it is not always practical to use the bags or film. In certain instances, containers are the preferred choice of cooking, particularly if the container is also used as part of the food preparation for cooking or for storage.

[0006] Accordingly, there is a need for improvements in the field of microwave cooking, particularly the utilization of the aforementioned venting material. The present invention responds to this need with an improved cooking apparatus that is particularly adapted for microwave cooking using venting films.

SUMMARY OF THE INVENTION

[0007] It is a first object of the present invention to provide an improved cooking apparatus.

[0008] Another object of the present invention is a method of microwave cooking using the inventive cooking apparatus.

[0009] Other objects and advantages of the present invention will become apparent as a description thereof proceeds.

[0010] In satisfaction of the foregoing objects and advantages, the present invention, in one mode, comprises a cooking apparatus having a container with an open top and a first lid adapted to attach to the container, the first lid having a first opening therein. A second lid is provided that is adapted to attach to the first lid, the second lid having a second opening therein, the first and/or second lid adapted to retain a venting film over the first opening. The first lid can

attach to the container in any number of ways, including attaching to a periphery of the container. Similarly, the second lid can attach to the first lid in any fashion, one way being attachment to a periphery of the first opening in the first lid. The peripheral attachment of the first lid to the container, and the second lid to the first lid can employ lips on their respective peripheries.

[0011] The venting film can be any type that will allow for a release of pressure during cooking, but is preferably the type disclosed in the Lin publications mentioned above.

[0012] The invention also entails a method of preparing for microwave cooking comprising the steps of filling an open top container with food to be micro-waved and covering a portion of the open top of the container with a lid so as to leave a remaining opening. The remaining opening is covered with a venting film, with the venting film being retained over the remaining opening while still exposing at least a portion of the venting film to atmosphere so that pressure build up in the container can be released through the venting film. The covering step of the first container further comprises attaching a lid with an opening therein to the container.

[0013] The step of retaining the venting film can be achieved by attaching a second lid to the first lid, the second lid having an opening that exposes the venting film to atmosphere for pressure build up relief.

[0014] In yet another aspect of the invention, a cooking apparatus is provided that comprises a container having an open top and a first lid adapted to attach to the first container, the first lid having an opening therein. The apparatus also includes a venting film covering the first opening, the venting film functioning to vent the container as a result of an increase in pressure within the container. The venting film can be either integral with the first lid or removably attached thereto.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 is a cross sectional view of a first embodiment of the invention;

[0016] FIG. 2 is a perspective view of one of the lids of the FIG. 1 embodiment;

[0017] FIG. 3 is a perspective view of the other lid of the FIG. 1 embodiment;

[0018] FIG. 4 is a partial cross sectional view of the apparatus showing a second embodiment of the invention;

[0019] FIG. 5 is a partial cross sectional view of the apparatus showing an alternative lid embodiment of the invention; and

[0020] FIG. 6 is a partial cross sectional view of the apparatus showing an additional lid configuration.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] The present invention offers significant improvements in microwave cooking using containers. The inventive cooking apparatus uses its lids to act as a support frame for the venting film, thus transforming a container with no venting capability into one with a breathable or pressure venting lid that allows pressure to build inside the container

and then release as the venting film opens its pores to accommodate the pressure condition. The pores then close down as pressure normalizes. The venting film will continue in this breathing cycle until the food is cooked. The unique design of the inventive cooking apparatus employing the venting film or membrane has significant merit as it transforms a plastic container into a flexible pressure cooker.

[0022] Referring now to **FIGS. 1-3**, one embodiment of the invention, in cross section, is designated by the reference numeral **10**, and is seen to include an open top container **1**, and first lid **3**, and a second lid **5**. The first lid attaches to the container **1** by engagement between the container lip **7** and first lid lip **9**.

[0023] The first lid **3** has an opening **11**, a periphery surrounding the opening **11** having a lip **13**. The second lid **5** has a lip **15** complementary to lip **13** so that the second lid **5** can be attached to the first lid **3**. Although the connection is not shown in **FIG. 1** between the lids **3** and **5**, it would function similar to the connection between lips **7** and **9**. It should be understood that the mode of attachment between the container **1** and first lid **3** and between the first and second lids **3** and **5** can be any type known in the art that would provide a sealing engagement so that the venting film can function to provide pressure relief. The use of engaging lips as shown in **FIG. 1** is but one example of such a sealing engagement. Clamps or other fasteners could be employed as well.

[0024] A venting film **17**, such as disclosed in the Lin publications, is arranged between the first lid **3** and second lid **5**, with the edges of the films designed to be sandwiched or held in place by the connection made between lips **13** and **15**. Of course, other means could be used to secure the film **17** to the lid **3** and/or **5**, just as long as the venting film **17** is secured in a way to seal the interior of the container **1**.

[0025] The second lid **5** has an opening **19**, which generally aligns with the opening **11** in the first lid, although the two openings can be offset from each other as well. The lid **5** in the embodiment of **FIG. 2** assists in retaining the venting film **17** in a sealing position, while at the same time allowing the film **17** to function in its intended way during cooking.

[0026] In one exemplary use, food intended to be cooked is placed in the container. A piece of the venting film **17** is secured between the first and second lids **3** and **5**. This can be done before or after the first lid **3** is attached to the container **1**. The first lid **3**, with or without the second lid **5**, is attached to the container **1**. If the second lid **5** and venting film **17** were previously attached to the first lid **3**, the cooking apparatus **10** can be placed in the microwave for the intended time period. If the second lid **5** has not been attached, it is then attached to the first lid **3**, and the cooking apparatus is placed in the microwave oven for cooking. As noted above, the pores of the venting film open during cooking, allowing the interior of the container **1** to breathe or release pressure during the cooking cycle. Put another way, the method involves covering a portion of the open top of the container so as to leave an opening, and then covering a remaining opening with the venting film. The venting film is secured while leaving a portion exposed to atmosphere so that it can function in its intended way during cooking. Any type of cooking can be performed using the inventive apparatus, including pressure cooking, steaming, reheating, etc.

[0027] The cooking apparatus can also be used in food preparation by attaching the first lid and using the opening **11** to add to the container, or access the contents in the container for stirring or the like.

[0028] The container and lids can be made of any material that is appropriate for microwave cooking. Moreover, while the venting film disclosed in the Lin publications is a preferred venting film for use with the inventive cooking apparatus, other types of venting films suitable for microwave cooking that function in a similar manner could be employed.

[0029] The container and lids could have any configuration. As shown in **FIG. 1**, the first lid **3** is configured to attach to a round container, but the opening **11** is oval in shape, thus defining the shape of the second lid **5**. While the opening in the first lid **3** is shown in general alignment with a center of the container, the opening **11** can be offset from the container center if so desired. Likewise, the opening in the second lid **5** could align generally with the opening in the first lid **3**, or it could be smaller in size if so desired, and also be offset from a center of the container.

[0030] While the venting film is used in combination with first and second lids, the venting film could be attached to the first lid alone, so that the second lid would not be needed. In this embodiment, the venting film could be removably attached over the opening in the first lid by any known means, e.g., held in place against a lip by an elastic band or the like. This embodiment is shown in **FIG. 4**, wherein the venting film **17** is held on the lip **13** of the lid **3** by an elastic band **21**.

[0031] The venting film could also be made as an integral part of the lid, so that it would not be removable. This embodiment is shown in **FIG. 5**, wherein a lid **3'** is shown with the venting film **17** made a part of thereof. The manner of integration of the film and lid **3'** can be any kind, e.g., an adhesive, molding or the like.

[0032] In another embodiment, the cooking apparatus can be used to seal the container for storage purposes or the like. Referring to **FIG. 6**, a third lid **19'** can be provided that does not have an opening in it. The third lid is configured to attach to the first lid **3** to seal the interior of the container. In another alternative, the third lid could be made similar in shape to the first lid, but without the opening, whereby this third lid could attach directly to the container for sealing purposes. In yet another alternative, a non-venting film or other non-permeable material, e.g., a clear wrap like Saran wrap, could be employed between the first and second lids for sealing purposes.

[0033] As such, an invention has been disclosed in terms of preferred embodiments thereof, which fulfills each and every one of the objects of the present invention as set forth above and provides a new and improved cooking apparatus and method of use.

[0034] Of course, various changes, modifications and alterations from the teachings of the present invention may be contemplated by those skilled in the art without departing from the intended spirit and scope thereof. It is intended that the present invention only be limited by the terms of the appended claims.

What is claimed is:

1. A cooking apparatus comprising:
 - a container having an open top;
 - a first lid adapted to attach to the container, the first lid having a first opening therein; and
 - a second lid, adapted to attach to the first lid, the second lid having a second opening therein, the first and/or second lid adapted to retain a venting film over the first opening.
2. The apparatus of claim 1, wherein the first lid attaches to a periphery of the container.
3. The apparatus of claim 1, wherein the second lid attaches to a periphery of the first opening in the first lid.
4. The apparatus of claim 2, wherein the second lid attaches to a periphery of the first opening in the first lid.
5. The apparatus of claim 1, wherein the venting film is a type wherein the venting film becomes air and vapor permeable when a differential pressure exists across a thickness of the film.
6. The apparatus of claim 1, wherein each of the first and second lids and container periphery have lips for engagement with each other.
7. A method of preparing for microwave cooking comprising the steps of:
 - a) filling an open top container with food to be microwaved;
 - b) covering a portion of the open top of the container with a lid so as to leave a remaining opening;
 - c) covering the remaining opening with a venting film; and
 - d) retaining the venting film over the remaining opening while still exposing at least a portion of the venting film to atmosphere so that pressure build up in the container can be released through the venting film.
8. The method of claim 7, wherein the covering step of (b) further comprises attaching a lid with an opening therein to the container.

9. The method of claim 8, wherein the retaining step of (c) further comprises attaching to the first lid, a second lid with an opening that exposes the venting film to atmosphere for pressure build up relief.

10. The method of claim 9, wherein the attachment of the second lid to the first lid retains the venting film in place.

11. A cooking apparatus comprising:

- a container having an open top;
- a first lid adapted to attach to the first container, the first lid having an opening therein; and
- a venting film covering the first opening, the venting film functioning to vent the container as a result of an increase in pressure within the container.

12. The cooking apparatus of claim 11, wherein the venting film is either integral with the first lid or removably attached thereto.

13. The cooking apparatus of claim 11, further comprising a second lid adapted to attach to the first lid to seal the opening.

14. The cooking apparatus of claim 11, further comprising a container lid adapted to attach to the container to seal an inside of the container.

15. The cooking apparatus of claim 13, further comprising a container lid adapted to attach to the container to seal an inside of the container.

16. The cooking apparatus of claim 12, wherein the venting film is removably attached to the first lid by a second lid that has an opening therein to vent the container as a result of an increase in pressure within the container.

17. The cooking apparatus of claim 15, wherein the venting film is removably attached to the first lid by a third lid that has an opening therein to vent the container as a result of an increase in pressure within the container.

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