



US 20030234014A1

(19) **United States**

(12) **Patent Application Publication**  
**Fitzgerald**

(10) **Pub. No.: US 2003/0234014 A1**

(43) **Pub. Date: Dec. 25, 2003**

(54) **FOOD COOKER**

**Publication Classification**

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(51) **Int. Cl.<sup>7</sup> ..... F24B 3/00; A47J 37/00**

(52) **U.S. Cl. .... 126/25 R; 126/9 R**

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(57) **ABSTRACT**

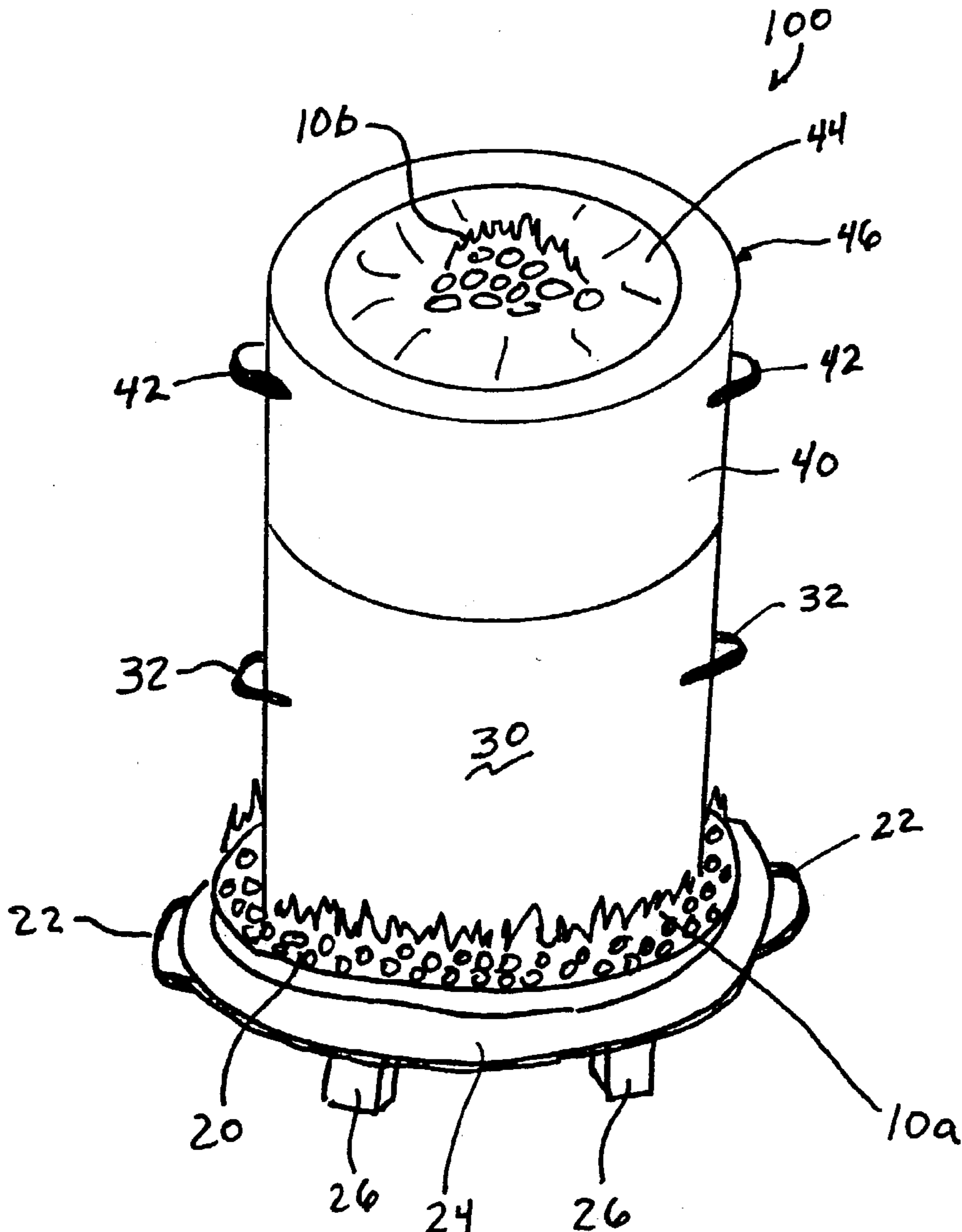
(21) **Appl. No.: 10/465,252**

(22) **Filed: Jun. 19, 2003**

**Related U.S. Application Data**

(60) **Provisional application No. 60/390,483, filed on Jun. 21, 2002.**

A method and apparatus for charcoal cooking of food utilizing a cook base and a removable cover mating with the cook base. The cooker has a substantially sealed interior cooking chamber for cooking food and an exterior portion with one charcoal heat source near the bottom of the cook base and another charcoal heat source on top of the removable cover, thereby separating the food and the fire.



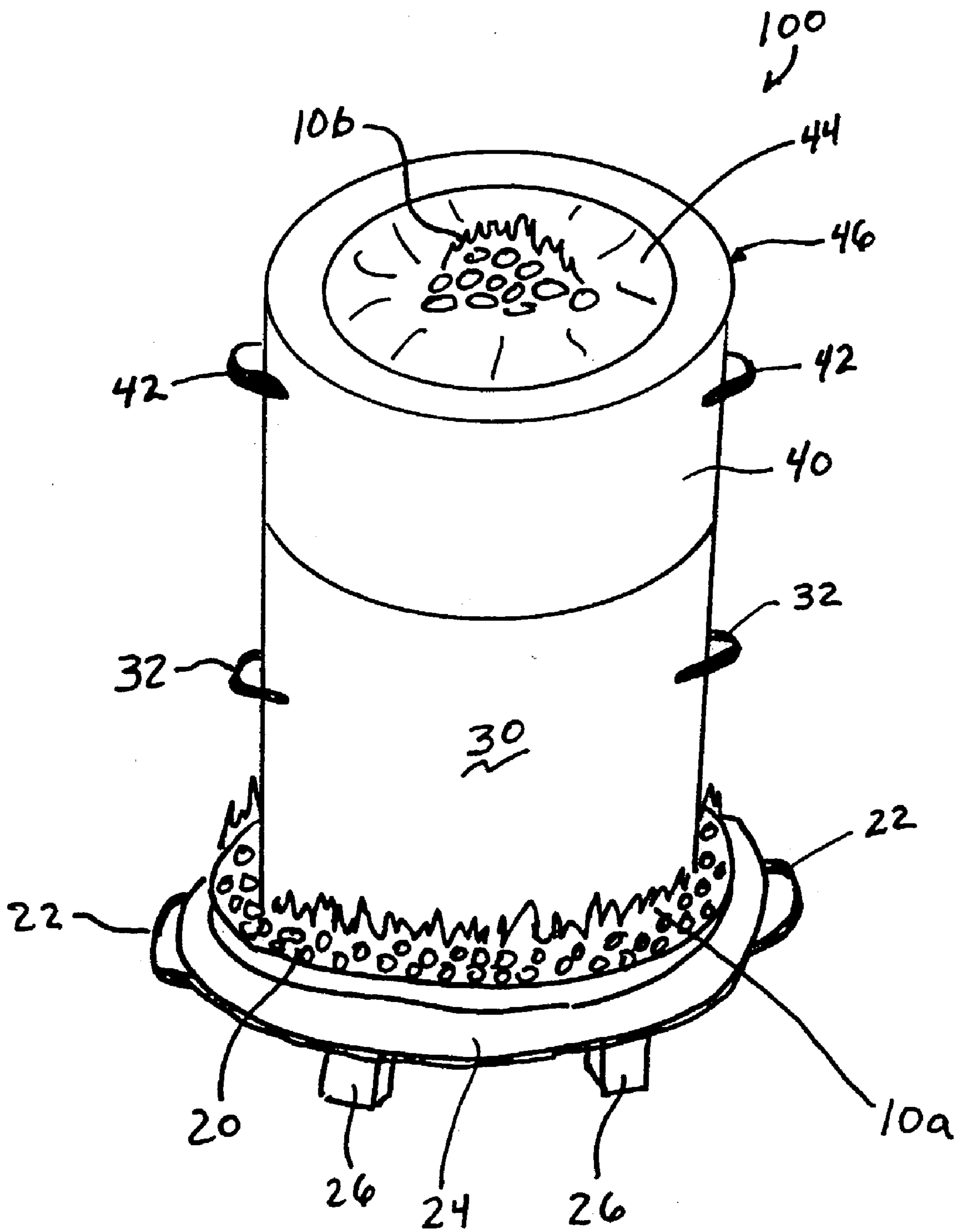


FIG 1

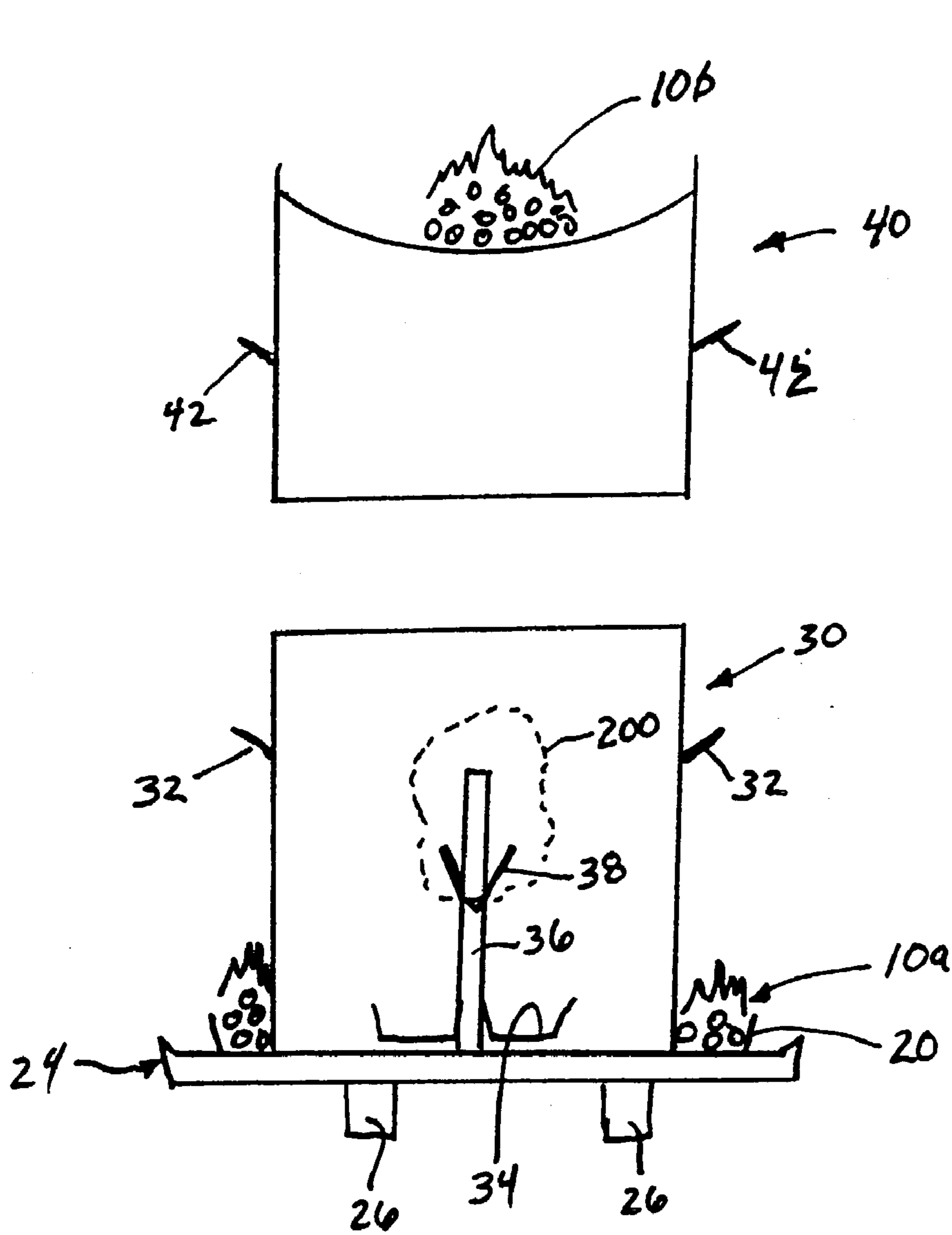


FIG 2

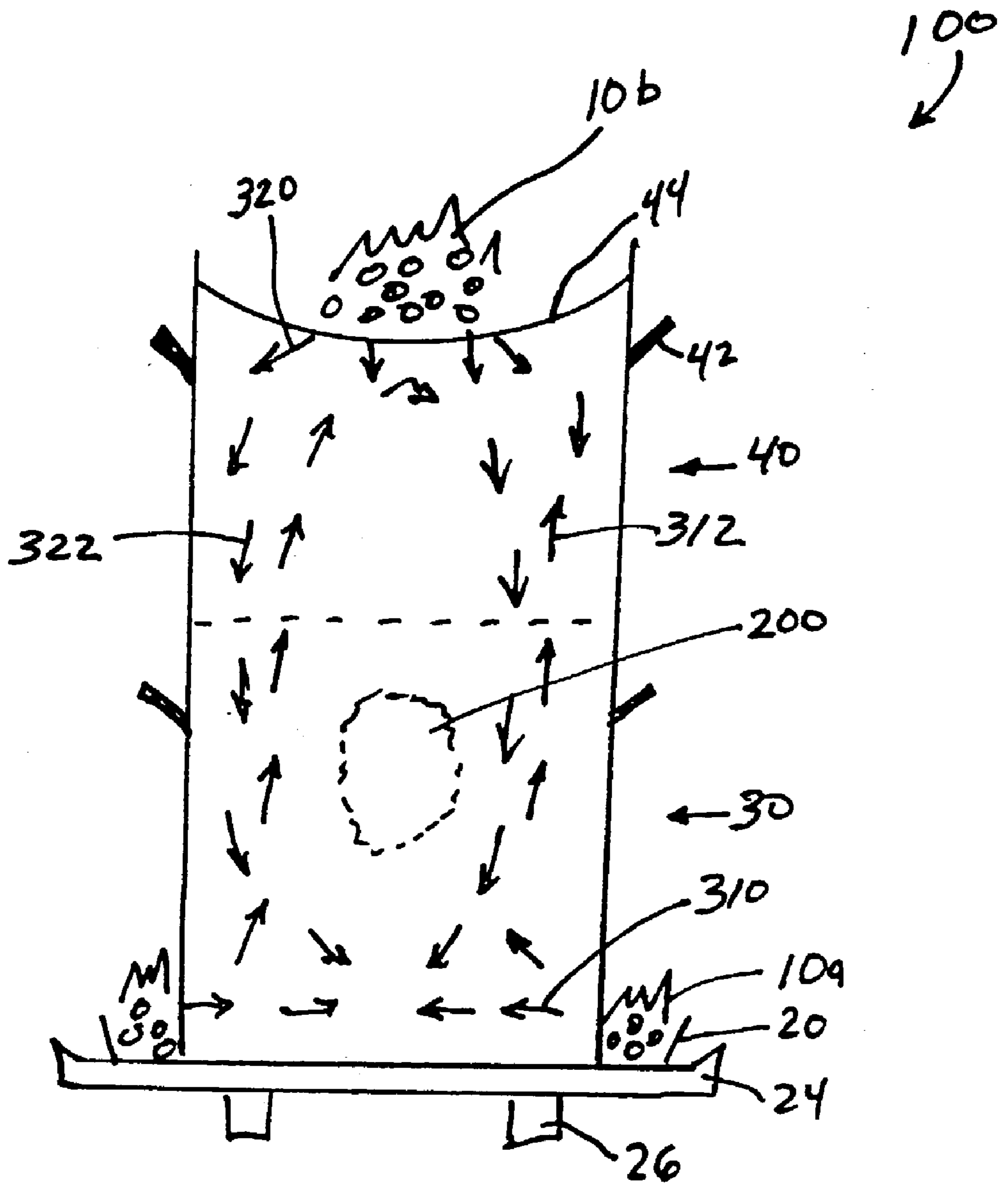


FIG 3

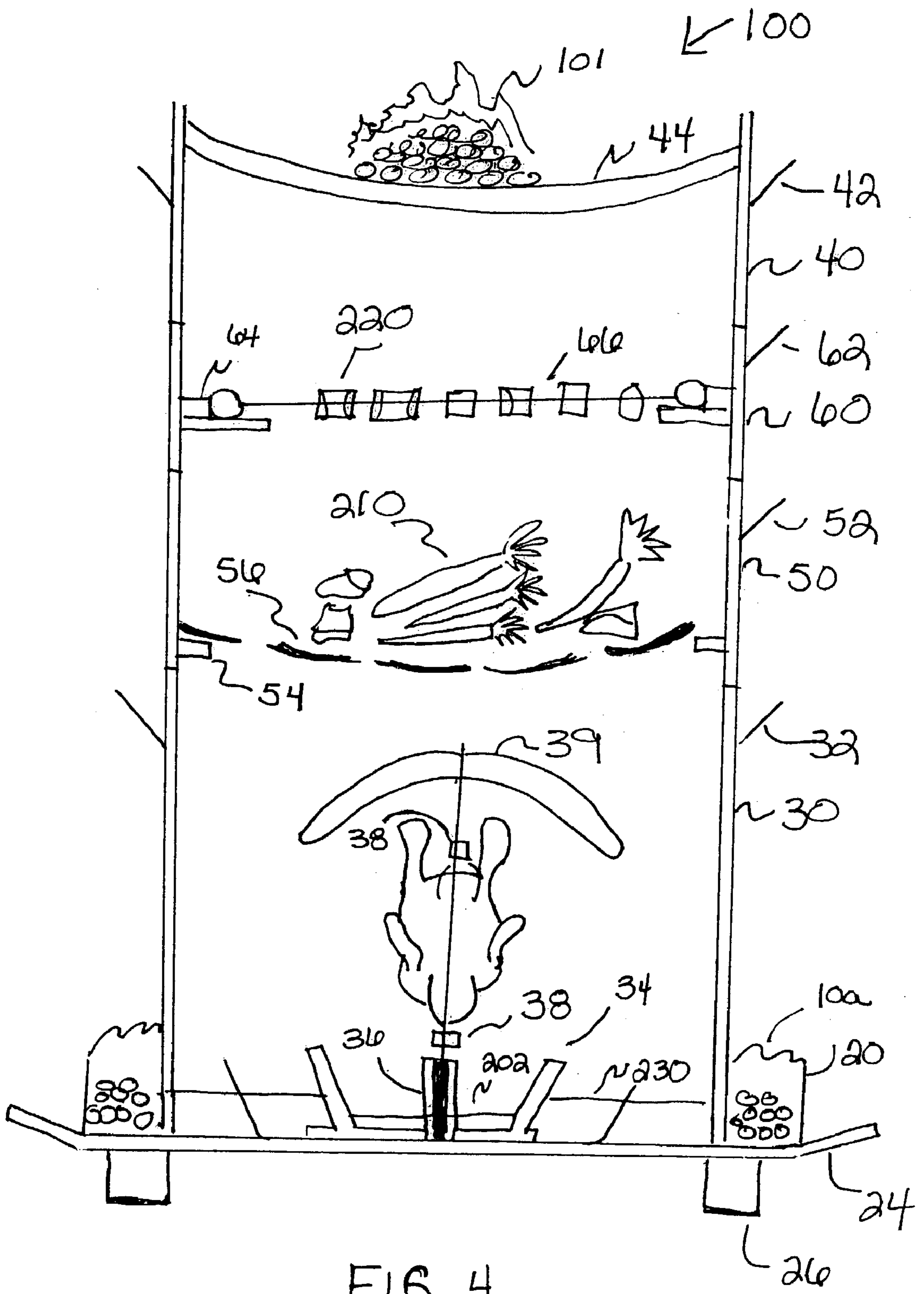


FIG. 4

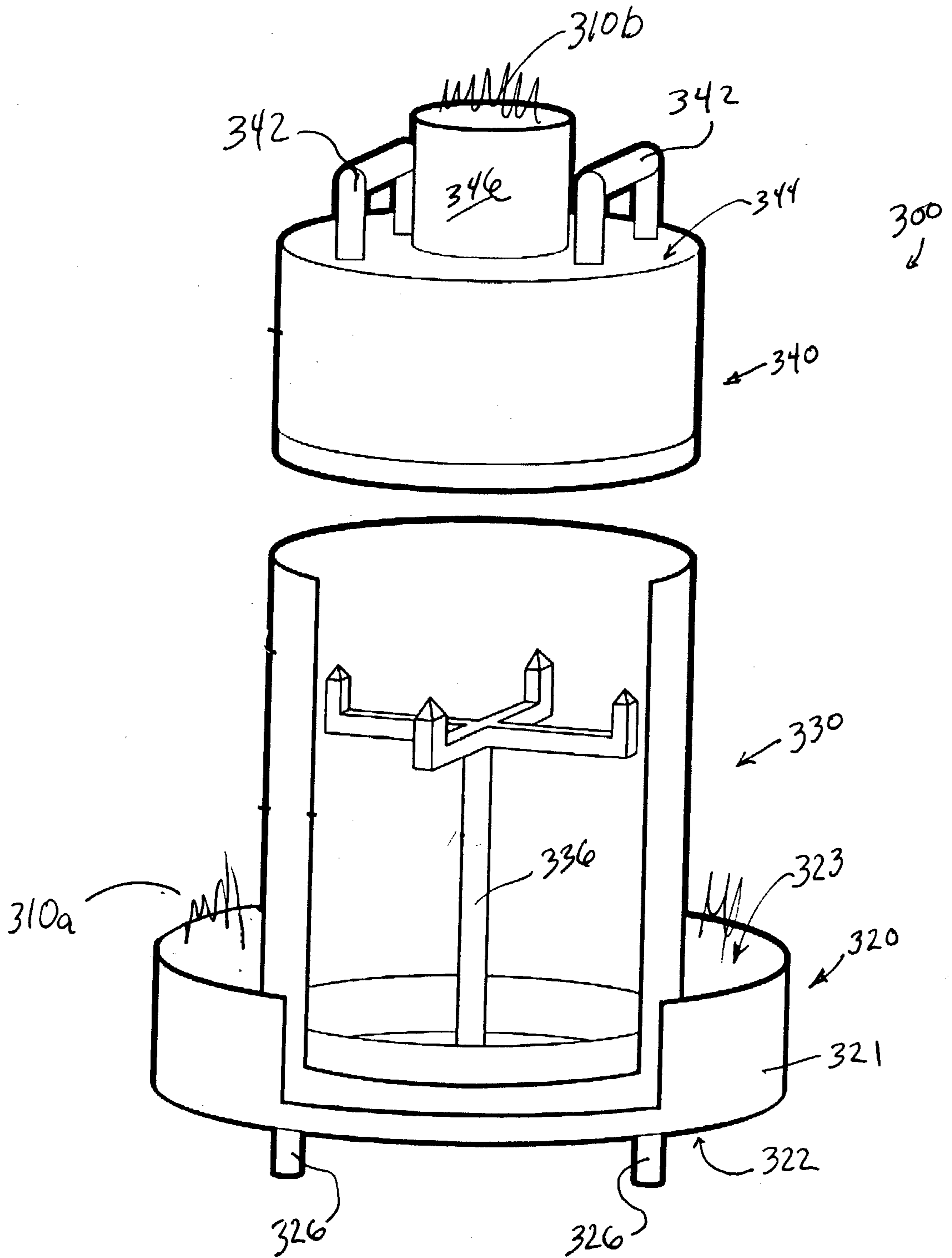


FIG 5



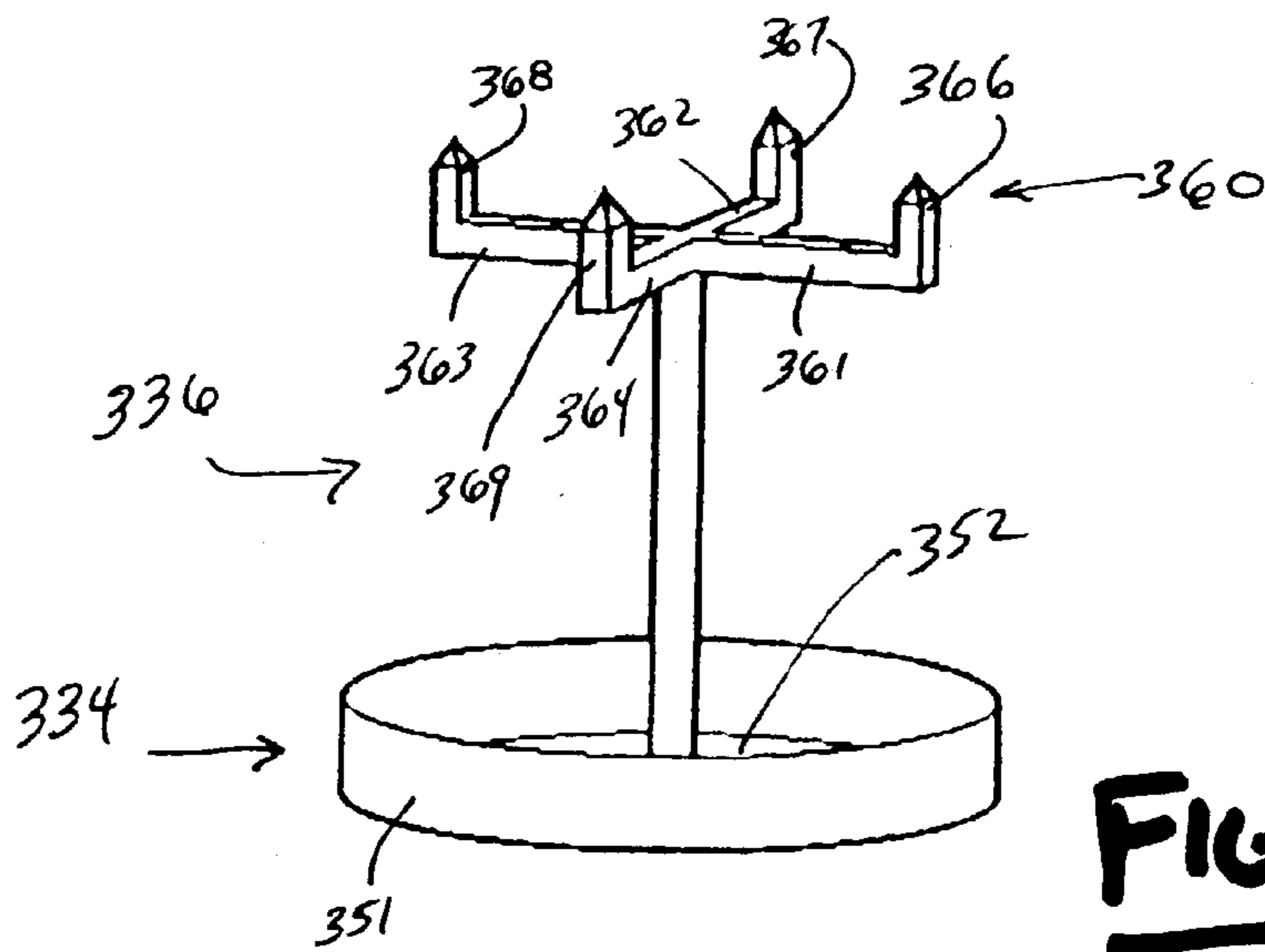


FIG 6A

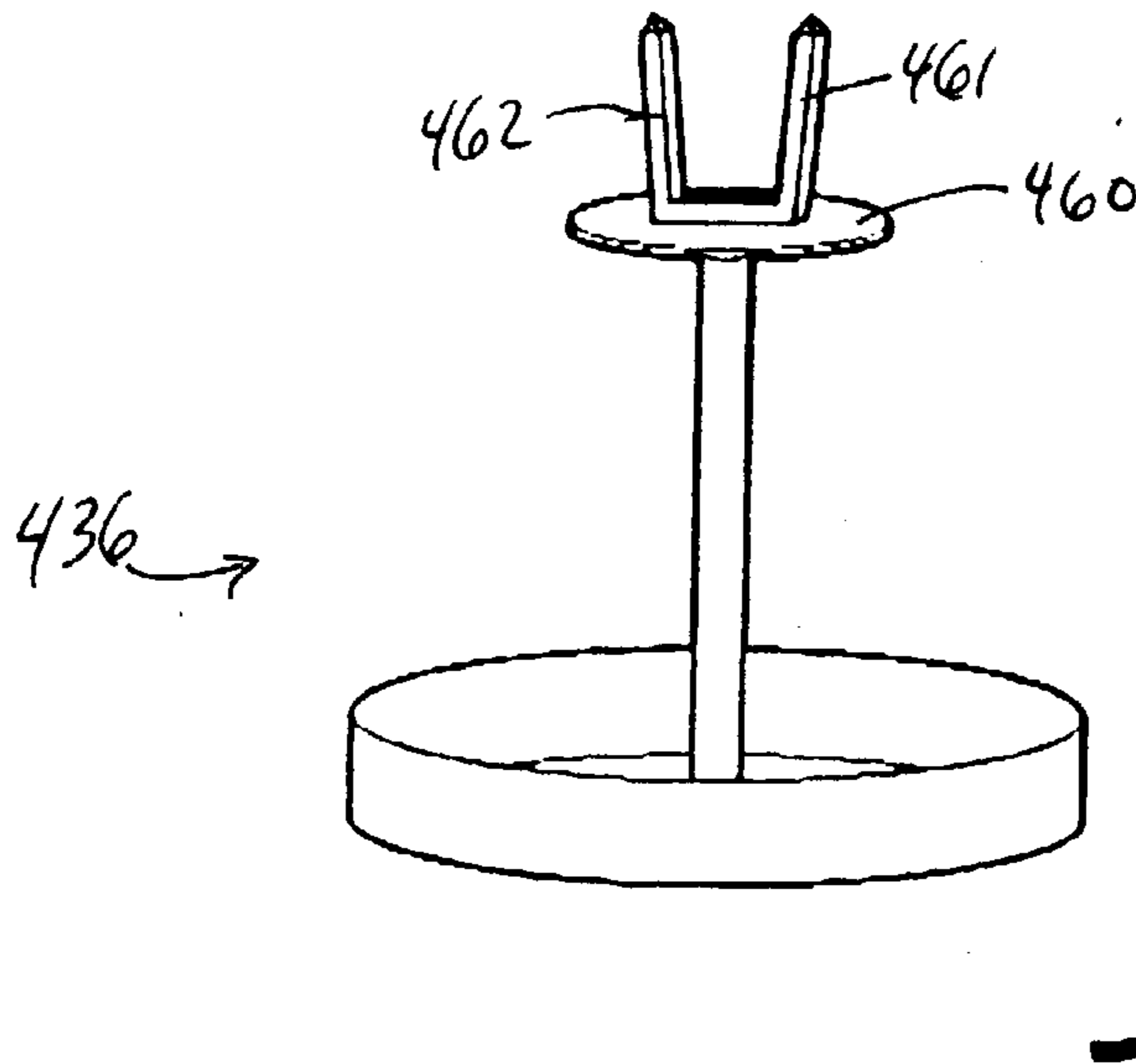


FIG 6B

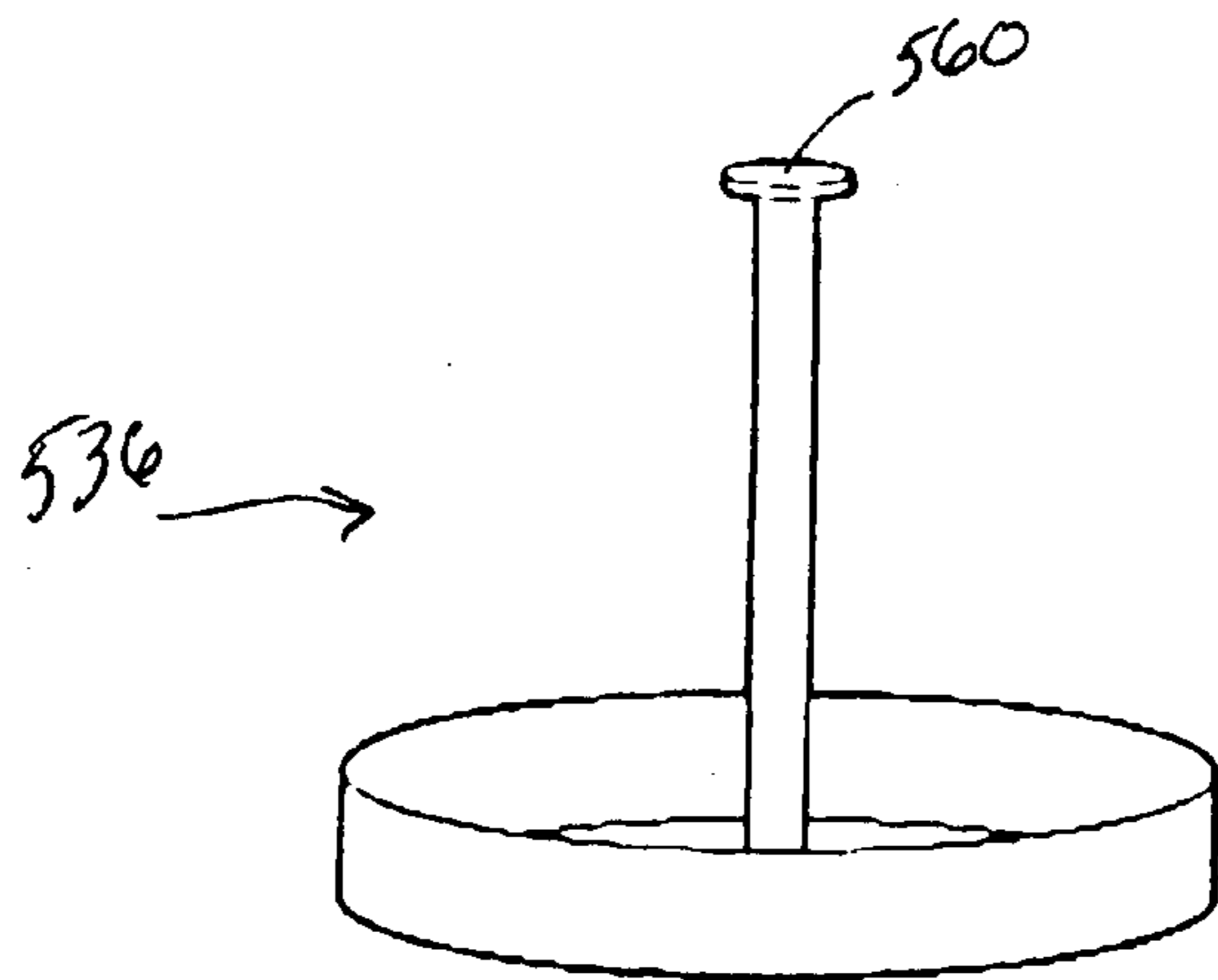


FIG 6C

## FOOD COOKER

### CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority benefit of U.S. Provisional Patent Application No. 60/390,483, filed Jun. 21, 2002, which is hereby incorporated by reference in its entirety.

### TECHNICAL FIELD

[0002] The present invention relates generally to a cooking device, and more specifically to a charcoaled-fired cooking device wherein the food is cooked without direct exposure to the fire.

### BACKGROUND OF THE INVENTION

[0003] A multitude of outdoor cookers have been created, presumably in hopes of improving the culinary quality and/or the ease of the cooking. For example, the following patents disclose various apparatuses and methods of cooking food in a device.

[0004] U.S. Pat. No. 4,924,845 of Johnson relates to a solid fuel cooker comprising upper and lower paraboloid-shaped members. The inner surface of the upper member (cover) focuses both radiant energy and convective heat around the item to be cooked situated in the upper portion of the apparatus. The upper portion of the cooker also includes a vent and a cap that serves both as a cover and as a measuring device for lighter fluid. The lower member (receptacle) houses the heating source. This invention provides means for concentrating the flow of air in an upward motion through the vent located at the top of the cooker.

[0005] U.S. Pat. No. 5,404,864 of Kent, Jr. relates to a portable outdoor cooking system which includes a combustion tube that houses an elongate fire chamber surrounding adjustable flaps which control the tube's intake and outflow of air. Food is placed across the upper opening of the tube for receiving the outflow of heat from the tube.

[0006] U.S. Pat. No. 5,649,477 of Lingwood relates to an outdoor cooking device comprising two or more heat sources located at the bottom portion of the device, means for supporting the food to be cooked above the heat sources, and a baffle between the food and the heat source so as to prevent drippings from the food from falling onto the heat source (thereby avoiding "flame-up").

[0007] U.S. Pat. No. 5,687,704 of Lerch, et al. relates to a portable grill having upper and lower conical-shaped inverted housings. The upper housing includes a grilling section supporting a grate for supporting charcoal or other solid fuel. The lower conical-shaped housing acts as a receptacle. The apertures are positioned in such a way as to provide convective-type heat transfer for cooking.

[0008] U.S. Pat. No. 5,752,497 of Combs, et al. relates to a portable outdoor cooking assembly utilizing a flue and damper mechanism.

[0009] U.S. Pat. No. 5,797,386 of Orr relates to a portable cooking device containing an open top and a burner housing located at the bottom portion of the device. A cooking grate is disposed on top of the burner housing and can be adjusted for obtaining two different cooking heights.

[0010] U.S. Pat. No. 3,823,174 of Andress relates to a portable cooking device containing an L-shaped open body, the bottom portion of which includes a grate for holding food, while the rear portion contains a vertically arranged fire chamber.

[0011] U.S. Pat. No. 5,842,463 of Hall relates to a portable camp stove having a fuel support grate positioned at the bottom of a combustion-chamber. Fuel is added to the chamber from the top and air is drawn into the chamber through a ring of intake apertures.

[0012] U.S. Pat. No. 6,095,130 of Faraj relates to a grill having horizontal shelves positioned along sidewalls for holding charcoal vertically along the sides in order to surround the item being cooked.

[0013] U.S. Pat. No. 6,138,661 of Cooper relates to a portable cooking stove comprising a bowl-shaped grate and a supporting column. The bowl is designed to hold burning wood or coal and includes holes for allowing air to pass through the bottom of the bowl to combust the coals. A cooking apparatus, such as a skillet, can be rested on the upper edge of the bowl for cooking.

[0014] U.S. Pat. No. 6,213,006 of Reardon relates to an outdoor portable grill containing a heat source at a bottom portion thereof, a cooking grate at the top portion and a heat-funnel positioned between the heat source and cooking grate.

[0015] U.S. Pat. No. 6,289,795 of McLemore, et al. relates to a cooking apparatus having a base pan for the heating element, a main body element located in the middle of the apparatus for containing the food to be cooked, and a cover supported by the base pan.

[0016] The just-described patents disclose many different cooker/grill arrangements. Each of the preceding arrangements has a heat source, in some cases a flame, which is directly exposed to the food. It can be appreciated that this type of direct-heat cooking can cause the food to dry out, as well as risk over-charring, flame-ups, or outright burning of the food. Moreover when the food piece is in the same basic container as the fuel, the container cannot be sealed as the fuel needs an open container to allow for oxygen for burning of the fuel, which as discussed, allows the food item to more quickly lose moisture and dry out.

[0017] Therefore, there yet is a need for a cooking apparatus and system that allows for the cooking of food outdoors without the flame or heat source being directly exposed to the food to be cooked. It is to the provision of such an apparatus that the present invention is primarily directed.

### SUMMARY OF THE INVENTION

[0018] Briefly described, in a preferred form the present invention comprises a charcoal-fired cooker for cooking food. The cooker includes a cook base and a removable cover mating therewith. Together, the cook base and the removable cover define an interior cooking chamber for cooking food. The cook base includes an external heat source. The external heat source comprises a first charcoal container for containing charcoal positioned near a lower portion of the cook base. The removable cover includes



another external heat source, held in a second charcoal container for containing charcoal.

[0019] So constructed, the charcoal-fired cooker cooks food in an indirect manner effectively and quickly. In this regard, the food is never directly exposed to the burning charcoal. Rather, the heat from the charcoal heats up the cook base and the removable cover from the outside. These heated parts then warm the air inside the interior cooking chamber to cook the food. The inventor has found this provides excellent results.

[0020] Preferably, the charcoal-fired cooker is shaped to be substantially cylindrical, substantially dome-shaped, or substantially egg-shaped. Also preferably, the cook base includes a floor and a food support for supporting food above the floor. In one form, the food support can be a vertically extending post. In another form, the food support can be a horizontally extending grate. Optionally, the cook base can include a removable drip pan positioned atop the floor.

[0021] Optionally, the cooker can include a middle portion that contains a grate or other means for supporting food pieces. The middle portion is placed between the lower and the upper portions. This arrangement facilitates the cooking of more than one type of food pieces. For example, a turkey or chicken could be cooked in the lower portion, and vegetables could be cooked or steamed in the upper portion.

[0022] Another option would be the inclusion of a pan to hold water, which assists in maintaining of the humidity level within the chamber, which allows, in part, the steaming of food pieces and helps to keep the food from drying out.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0023] FIG. 1 is a perspective view of a food cooker in a first preferred form of the invention.

[0024] FIG. 2 is a schematic cross-sectional view of the food cooker of FIG. 1 with the top and bottom portions thereof separated.

[0025] FIG. 3 is a schematic cross-sectional view of the food cooker of FIG. 1 showing expected heat flow patterns with the top and bottom portions are mated.

[0026] FIG. 4 is a schematic cross-sectional view of a food cooker in an alternate form of the invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0027] In describing the embodiments of the present invention, specific terminology is employed for the sake of clarity. However, the invention is not intended to be limited to the specific terminology so selected. Moreover, in the drawing figures like reference numerals refer to like parts throughout the several views.

[0028] Turning the reader's attention to FIG. 1, in a first embodiment a charcoal-fired cooker 100 has a cook base 30 and a cover 40. The cook base 30 has a side portion to which handles 32 are affixed. It can be preferable to fabricate handles 32 of non-heat conducting, or minimally heat conducting, material to lessen the risk of burns of the user.

[0029] Examples of such materials would be wood and plastic. The cook base 30 preferably is attached to or placed

in a fire ring 20. It may be preferable to have fire ring 20 be a separate piece from the cook base 30 to assist in ease of cleaning and parts replacement. Also, it can be preferable to provide clips, sockets, sliders or the like to removably mate the fire ring 20 to the cook base 30.

[0030] An annular ledge 24 is fitted around the fire ring 20. The annular ledge 24 should be designed to protect the area beneath the food cooker 100 from the heat generated by the food cooker 100. Design criteria for the annular ledge 24 can include appropriate thickness, non-heat conducting or low heat conducting material, as well as providing a lip around the edge of the ledge 24 to assist in preventing the soot and ash and other materials from spilling from the fire ring 20 and falling below the ledge 24. As with the fire ring 20 being mated to the cook base 30, the fire ring 20 can be attached or mated in a similar fashion to the ledge 24.

[0031] To assist in placement and transport, the handles 22 are affixed to the ledge 24. As with handles 32, the handles 22 can be made of non- or low-heat conducting material. Alternatively the handles 22 may be attached to the fire ring 20. In the present embodiment, the ledge 24 is a plate that covers the entire bottom of the cook base 30 and the fire ring 30, thereby acting as a floor. This can be preferable as it assists in providing heat transfer through the underside of the cook base 30.

[0032] Support legs 26 are affixed to the bottom of the ledge 24. Support legs 26 should provide sufficient clearance of the food cooker 100 from the ground to reduce the risk of fire under and around the food cooker 100. It is preferable to have at least three legs for stability of the food cooker 100 as one skilled in the art would appreciate that tipping of the food cooker 100 during use is highly undesirable.

[0033] Charcoal fire 10a is placed inside of the fire ring 20, which allows the charcoal fire 10a to be in contact with, or be juxtaposed to the cook base 30. Other embodiments include utilizing different combustible heat sources in place of charcoal, including wood. Preferably, the location of the fire ring 20 and the charcoal fire 10a on cook base 30 is near the bottom to facilitate heat transfer to the ledge 24 or to the floor of the cook base 30.

[0034] Cover 40 is placed on, and preferably mated to, the top of cook base 30. Cook base 30 and cover 40 should be mated as to prevent communication between the fire, which is external to the cooker 100, and the food, which is internal to the cooker 100. This mating can be done with grooves, latches, sliders, notches or combinations thereof as well as with similar means. Cover 40 can have handles 42 affixed to the side portions of the cover 40 to allow for removal from the cook base 30 as well as for transport. Cover 40 has a concave top 44 that provides for placement of the charcoal fire 10b. In the present embodiment, upper ring 46 is utilized to protect against the spillage of charcoal fire 10b. As with the charcoal fire 10a, the alternatives to charcoal fire 10b include utilizing different combustible heat sources in place of charcoal, including wood. It should be noted that one or both of the charcoal fire 10a-b could use alternative fuel sources.

[0035] Now turning to FIG. 2, the reader should direct his or her attention to the depiction of the cross-sectional view of the food cooker 100. Cover 40 is removed from the cook base 30. The inner portion of the cook base 30 is placed



drip pan **34**. Substantially in the center of drip pan **34**, and substantially perpendicular from the ledge **24** is placed post **36**. Post **36** can include fork(s) **38** that assists in holding the food item **200** above drip pan **34**. Food item **200** can be a turkey, chicken, roast or the like. Alternatives to post **36** may include a grate, basket, skewer or the like that would be substantially parallel to ledge **24**. This may include notches or other canaliculations, fillets, edges, brackets or the like on the interior of the sides of the cook base **30** which will allow placement of grates, baskets, skewer or the like which will act as an alternative food containment means.

[0036] As shown in FIG. 3, it is believed that the charcoal fire **10a** results in creating first a heat flow **310** which would radiate along the ledge **24** and up from the side walls of the cook base **30**, continuing upwards as heat flow **312**. Conversely, the charcoal fire **10b** has first heat flow **320** which flows along the concave top **44** and down the side walls of removable top **40**, continuing downwards as heat flow **322**. The reader should note that while heat flows **310-322** are approximate and hypothetical in nature, a convection flow is present in and around the food cooker **100**. Heat flows **310-322** therefore provide sufficient heat to cook the food item **200** sufficiently, while assisting in the prevention of possible "flare-ups" from grease dripping on the flame present in the charcoal or other typical flareups commonly associated with the burning of a food item in other food cookers.

[0037] As the mating of the cook base **30** and the removable top **40** preferably assists in preventing the escape of moisture from the cooker **100**, food item **200** will not likely dry out, as much as in typical food cookers. Other embodiments of use would include the placing of an appropriate amount of water in a drip pan to provide higher moisture content in the inner portion of the food cooker **100**. As concave top **44** is concave, the collection of the moisture would be at the lowest point of the concave top **44** and then would drip downward into drip pan **34**. Drip pan **34** will therefore not only collect the grease and fat drippings from the food item **200**, but also water falling from the concave top **44**.

[0038] An alternative preferred embodiment of the food cooker **100** is shown in FIG. 4. FIG. 4 is a cross sectional view of the food cooker **100**, where lower middle portion **50** and upper middle portion **60** are mated, as shown, to cook bottom **30** and removable top **40** respectively, as well as to one another.

[0039] As shown, the lower middle portion **50** has handles **52** on the exterior portion and bracket **54** on the interior portion. Basket **56** rests on the bracket **54**. Food items **210** can be inside basket **56**. These may include carrots, potatoes, other vegetables and the like. Alternatively, the food items **210** can hold fish, pork, or other such food items. Basket **56** may then include a top portion that would be placed on top of food item **210**. The upper middle portion **60** also has handles **62** on the exterior portion and bracket **64** on the interior portion. Bracket **64** can be made larger so that it is capable of holding in place skewer **66** so that food items **220** can be placed on it. Food items **220** can include cube meat, onions, tomatoes, peppers and the like. Alternative to skewer **66** could be a grate, grill or the like which would allow for placing food items **220** directly on top.

[0040] Splash guard **39** is placed on the post **36** over the food item **200**. As discussed previously, moisture will likely

collect and drip from the concave top **44** near the center axis of the food cooker **100**. This would lead to dripping on the food item **200**. In the present embodiment, slash guard **39** will direct the moisture, typically essentially water to the outside of the drip pan and collection in water collection **230**. Conversely, the grease and fat drippings from the food item **200** will collect in the grease collection **202**.

[0041] As discussed prior, during use of the food cooker **100** and prior to lighting of charcoal **10a-b**, it can be preferable to add water to the water collection **230** to increase the moisture content inside the food cooker **100**.

[0042] Additionally, it can be preferable to provide appropriate size slash guards in middle portions **50, 60**.

[0043] When using the food cooker **100** it can be preferable to place the food item **200** in cook base **30** along with any needed drip pan **34**, post **36**, forks **38** and slash guard **39**. Also at this time, it is a preferable time to add water to the water collection **230**, if desired. Alternative embodiments of the cook base **30** may include utilizing baskets, grills, skewers, grates or the like.

[0044] One will then mate lower middle portion **50** with the cook base **30**. One would then place basket **56** of the bracket **54** and then food item **210** in the basket **56**. As mentioned, a splash guard and/or top basket can be placed on the food item **210** and this point.

[0045] Then one will mate the upper middle portion **60** with the lower middle portion **50**, once again placing the skewer **66** (or one of the previously discussed alternatives) onto the bracket **64**. If one uses the skewer **66**, then the food items **220** should be skewered on the skewer **66** just prior to the placement on the bracket **64**. When preparing the skewer **66** with the food items **220** it would preferable to have the middle of the skewer **66** to not contain any food items **220**, as the skewers **66** will be typically laid in the horizontal plane as each skewer **66** with a vertical rotation about the center of one another to give an appearance similar to bicycle spokes. As the skewers **66** will intersect substantially at the center of each of skewer **66**, it is preferable that no food item **220** is in the way. The removable top **40** is then mated to the upper middle portion **60**.

[0046] The charcoal fire **10a** is created or placed in the fire ring **20** and the charcoal fire **10b** is created or placed in the concave top **44**.

[0047] The food items **200-220** are then cooked the appropriate times and then removed and enjoyed.

[0048] Finally, it will be understood that the preferred embodiment has been disclosed by way of example, and that other modifications may occur to those skilled in the art without departing from the scope and spirit of the appended claims.

I claim:

1. A charcoal-fired food cooker for cooking food comprising:

a cook base and a removable cover mating therewith, together defining an interior cooking chamber for cooking food;

the cook base including an external heat source comprising a first charcoal container for containing charcoal,



the first charcoal container being positioned near a lower portion of the cook base; and

the removable cover including an external heat source comprising a second charcoal container for containing charcoal.

**2.** A charcoal-fired food cooker as claimed in claim 1 wherein the second charcoal container is positioned near a top portion of the removable cover.

**3.** A charcoal fired food cooker as claimed in claim 1 wherein the first charcoal container comprises an annular ledge fitted about the outside of the cook base.

**4.** A charcoal-fired food cooker as claimed in claim 1 wherein the cook base includes a floor and a food support for supporting food above the floor.

**5.** A charcoal-fired food cooker as claimed in claim 4 wherein the food support comprises a vertical post extending upwardly from the floor.

**6.** A charcoal-fired food cooker as claimed in claim 4 wherein the food support comprises a horizontal grate.

**7.** A charcoal-fired food cooker as claimed in claim 4 further comprising a removable drip pan positioned above the floor.

**8.** A charcoal-fired food cooker as claimed in claim 1 wherein the cook base and the removable cover together are substantially cylindrical.

**9.** A charcoal-fired food cooker as claimed in claim 1 wherein at least one of the cook base and the removable cover is substantially dome-shaped.

**10.** A charcoal-fired food cooker as claimed in claim 1 wherein the cook base and the removable cover together are substantially egg-shaped.

**11.** A charcoal-fired food cooker as claimed in claim 2 wherein the second charcoal container comprises a concave depression formed in the removable cover.

**12.** A charcoal-fired food cooker as claimed in claim 1 wherein the first charcoal container is spaced above a bottom most portion of the cook base.

**13.** A charcoal-fired food cooker as claimed in claim 1 wherein the removable cover is substantially ellipsoid.

**14.** A charcoal-fired food cooker as claimed in claim 1 wherein the cook base and the removable cover are substantially frustoconical.

**15.** A charcoal-fired food cooker as claimed in claim 1 wherein the cook base and the removable cover are substantially parallelepiped.

**16.** A cooker for cooking food comprising:

a cook base including walls defining an interior and exterior of the cook base,

a combustible heat source containment area substantially next to the exterior of the cook base,

a food piece containment area in the interior portion of the cook base; and

a removable cover including a top and walls wherein the cover is able to be mated to the cook base.

**17.** The food cooker of claim 16 wherein the removable cover includes an exterior heat source containment area.

**18.** The food cooker of claim 16 wherein the cook base comprises a bottom further defining the interior and exterior of the cook base, the bottom having external legs extending downwardly for supporting the cook base.

**19.** The food cooker of claim 16 wherein a drip pan is removably placed on the interior portion of the bottom of the cook base.

**20.** The food cooker of claim 16 further comprising a food support post extending from the bottom of the cook base.

**21.** The food cooker of claim 16 further comprising at least one middle section having walls defining an interior and exterior portion and able to be mated to the cook base at one end and to the removable cover at the other end.

**22.** The food cooker of claim 16 wherein the middle section defines an interior food containment area.

**23.** The food cooker of claim 16 wherein at least a portion of the cooker is substantially cylindrical.

**24.** The food cooker of claim 16 wherein the cooker is substantially egg-shaped.

**25.** The food cooker of claim 16 wherein at least a portion of the cooker is substantially frustoconical.

**26.** The food cooker of claim 16 wherein at least a portion of the cooker is substantially dome-shaped.

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