



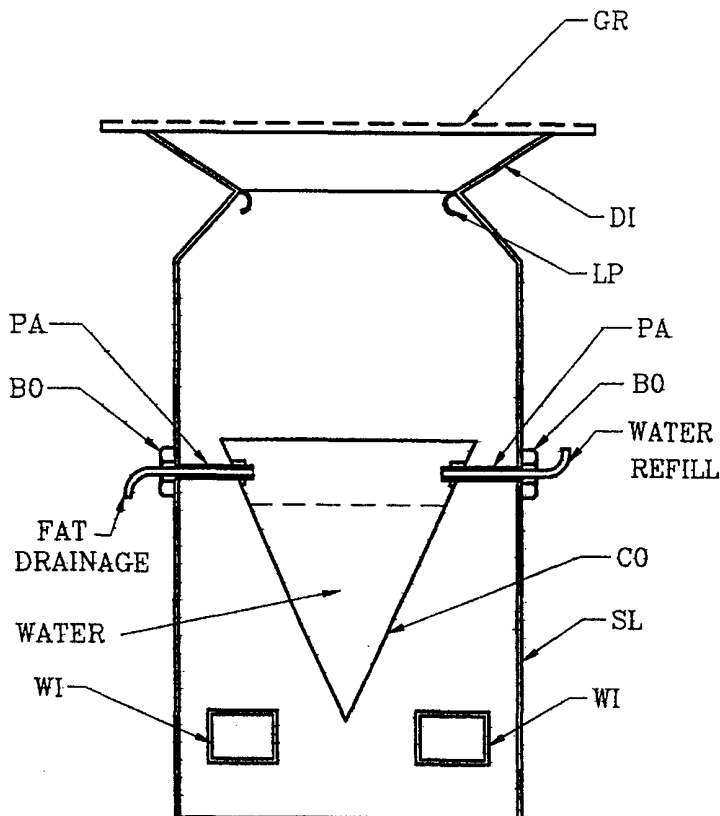
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A47J 37/00	A1	(11) International Publication Number: WO 00/25645 (43) International Publication Date: 11 May 2000 (11.05.00)
(21) International Application Number: PCT/IL98/00531 (22) International Filing Date: 3 November 1998 (03.11.98) (71)(72) Applicant and Inventor: WODESLAVSKY, Josef [IL/IL]; Hamarganit Street 76, 52584 Ramat Gan (IL).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>

(54) Title: INDOOR SMOKELESS GRILL

(57) Abstract

An indoor and outdoor smokeless grill comprising a housing (SL) which contains at least two openings, one at the bottom and one at the top of said housing, that housing consisting of a tank (CO) to contain water, and that tank situated between the openings of said housing, and said housing situated on a heat source (BE) like a stove whereby the hot air that rises from the burner of a stove will bypass said tank (CO) and will cook the meat that is situated on the grill (GR) that is disposed on top of said housing, and when the fat on said meat begins to melt this fat will drip into said tank in order to avoid the fat dripping on said heat source, thus grilling the meat while avoiding the smoke that results from the burning of fat particles.



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Indoor Smokeless Grill

Field of the Invention

The present invention relates generally to indoor grills for cooking food like red meat and chicken. But such a grill will not require a chimney or other kind of ventilation to drive the smoke out of the house, since this type of grill will not produce smoke.

The aim of this invention is to permit the user to enjoy the taste of meat that has been cooked on an open fire whereby the fire is in direct contact with the meat, but without suffering the drawback of smoke being created during the cooking process. This grill can be used in a closed kitchen on an ordinary stove.

Additional aims of this invention are to reduce the risk of burning the grilled food even if the user leaves it cooking for too long a period and to keep the grilled food more moist.

Background of the Invention

The benefits of grills for cooking food have been known since the early days when people used fire to cook and grill. But no one has offered an open grill that can be used indoors without a chimney, since contact between meat and fire melts the fat in the meat and the contact between the fat and the fire will ignite the fat, which will burn and create smoke.

Many ideas have been proposed for indoor grills, such as frying with no oil on intermediate heat, or having the cooking flame positioned above the meat, but none have

succeeded. My invention uses the concept that fire or very hot air will heat the meat from underneath and from the top, and that the very same air will ventilate the kitchen.

The other problem that this invention solves is that there is no direct contact between the fat and the fire or heat source, which eliminates the residue of fat or other liquids that might drip on the source of the fire. Like the stove burner, it will keep the stove clean of meat particles and fat.

It is known that if foods like red meat or chicken are left on a grill too long, they will burn or become dry. My invention addresses this problem and provides a solution to it.

Brief Description of the Drawings

Fig. 1 will illustrate the indoor smokeless grill embodiment.

Fig. 2 will illustrate the smokeless grill cooking on a stove.

Fig. 3 will illustrate the smokeless grill with a second stage of fat trap.

Fig. 4 will illustrate the manual heat control adjustment feature.

Fig. 5 will illustrate the automatic heat control adjustment feature.

Detailed Description of the Drawings

Fig. 1 will illustrate the indoor smokeless grill, which consists of an embodiment SL which can be constructed as a round sleeve. At the bottom it has windows W1. To the sleeve SL is attached container CO by bolts BO. On the upper part of the sleeve SL is mounted a round dish DI, and on the top of said dish sits a grill GR. The container CO could be cone-shaped, and should be filled with water during the cooking process. The

upper diameter of container CO is larger than the upper diameter of sleeve SL. This difference in size will cause the melting fat to fall into the container because of the force of gravity, avoiding dripping on the burner.

If said sleeve is situated on a stove, the lower part of the container CO will be distanced from the fire source and the hot burning air will pass between the inner part of the sleeve SL and the upper part of the water container CO. The difference between the diameters of these parts will establish an air passage PA. The hot air will climb until it faces the grill GR. The meat that will be situated on the grill will be heated and cooked and the temperature will rise until the fat starts melting and will fall into container CO which is filled with water, avoiding contact with the fire source. The burning air will boil the water in container CO, turning it into steam. This steam will reduce the temperature of the hot air cooking the meat, thereby preventing the meat from burning, even if it stays on the grill for a long time.

Fig. 2 will illustrate the indoor smokeless grill situated on a stove. Sleeve SL is situated surrounding the burner BE. The hot air cooks the meat. The lower diameter of dish DI is smaller than the upper diameter of container CO, therefore the liquid fat from said dish will drop into the container CO.

Fig. 3 will illustrate the indoor smokeless grill, like Fig. 1. It should be noted that dish DI can be designed to contain water as well, so that it traps some of the fat up to the top before it reaches said lower container. It should be noted that the water in the container can reach the boiling point, creating steam which will help the cooking process.

Fig. 4 will illustrate the indoor smokeless grill whereby the container CO is situated on sleeve SL by screw SC which sits in nut NU which is bolted to sleeve SL by

bolts BO. The user can turn the container to the left or to the right, and by doing so will change the height of container CO up or down relative to the fire or heat source. Adjusting the distance between the container and the fire affects the amount of steam that is emitted from said container. In addition, positioning the upper end of said container nearer to the upper end of sleeve SL restricts the heat from getting to the food, thereby slowing the cooking process.

Fig. 5 will illustrate another embodiment of the invention whereby the movement of said container will be governed automatically. Container CO hangs on a bimetal (containing two pieces, each made of different metal, e.g., aluminum and steel) strip BIM that is connected to the top of sleeve SL. Said bimetal strip lies flat when cold, but the moment that very hot air reaches it, said bimetal strip reacts by bending upward, pulling the water container CO upward and restricting the flow of the hot burning air through passageway PA to the food. This causes a buildup of hot burning air that creates more steam. Excess hot burning air escapes from the windows WI, and the additional steam reduces the temperature of the hot air. When the temperature of the hot air is reduced the bimetal strip will bend back and lower the container CO, again opening the passageway PA and permitting the burning air to rise. Bimetal strip BIM can be designed by known means to act as an adjustable thermostat so the user can set the desired cooking temperature. As an example of such an adjustment, into cup CP, a spring housing, is screwed bolt BOL. Said bolt will bias on spring SP which is attached to bimetal strip BIM, and if spring SP puts more pressure on said bimetal strip BIM, the cooking temperature will rise. An electric stove can do the work as well. The embodiments that are illustrated are only examples and do not limit the scope of the invention. It can be modified and still be within the scope of the invention.

The water container can be mounted so that it can be lifted or lowered regarding its distance from the grill or the fire.

The sleeve can be composed of two pieces, with the upper piece sliding into the lower one, allowing increased flexibility in keeping it distanced from the fire.

This smokeless grill can of course also be used outdoors. Also, the water for container CO can be fed from an outside water pipe.

Having thus described at least one illustrative embodiment of the invention, various alterations, modifications and improvements will readily occur to those skilled in the art. Such alterations, modifications and improvements are intended to be within the spirit and scope of the invention. Accordingly, the foregoing description is by way of example only and is not intended as limiting. The invention is limited only as defined in the following claims and the equivalents thereto.

Claims

What is claimed is:

1. An indoor and outdoor smokeless grill comprising:

an open housing, a water container and a grill and:

said hollow housing has at least one inlet opening at one side for letting in hot burning air from a gas burner, electric stove, charcoal or other source of heat for cooking, and said hollow housing consists of at least one additional opening for an outlet which will direct said hot burning air from the inlet to a grill situated on said outlet; and

said water container which is located in said hollow housing between said inlet opening and said outlet whereby said container, which will not block the hot burning air from reaching the grill, will catch the liquids and particles that melt from the food being cooked on said grill, to avoid said liquids from contact with the fire that created said hot air.

2. An indoor and outdoor smokeless grill as claimed in Claim 1 whereby on said hollow housing is situated a dish means and said dish has an opening on both sides to let the hot air pass through said dish, and on said dish means is situated a grill, and said dish is designed to contain water in order to serve as a receptacle for liquids that are melting from food being cooked on said grill.
3. An indoor and outdoor smokeless grill as claimed in Claim 1 whereby said container is designed in a cone shape.

4. An indoor and outdoor smokeless grill as claimed in Claim 1 whereby the location of —
said water container can be adjusted manually up and down relative to the heat source
and to the grill.
5. An indoor and outdoor smokeless grill as claimed in Claim 1 whereby the
temperature of the hot burning air that cooks the food will automatically be set by
known means that restricts and controls the flow of said hot air to said food.

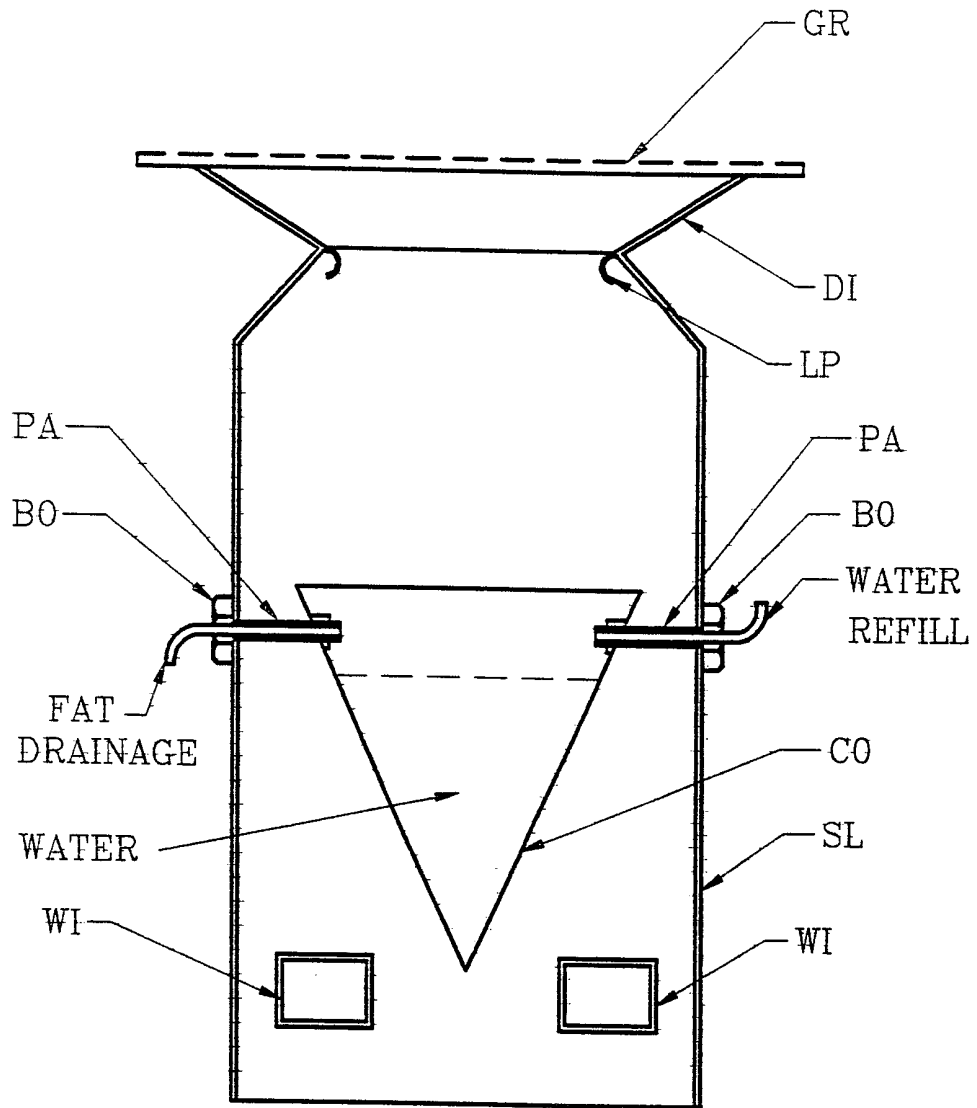


Fig. 1

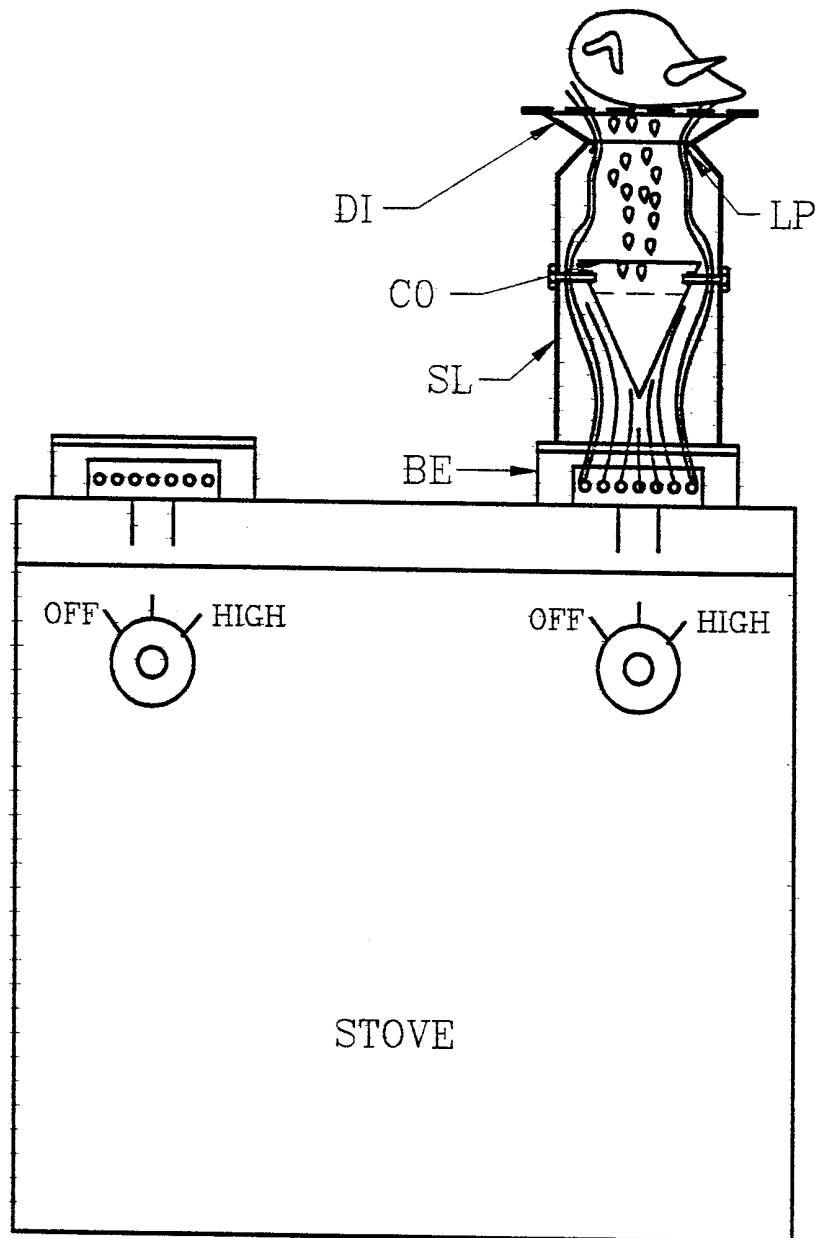


Fig. 2

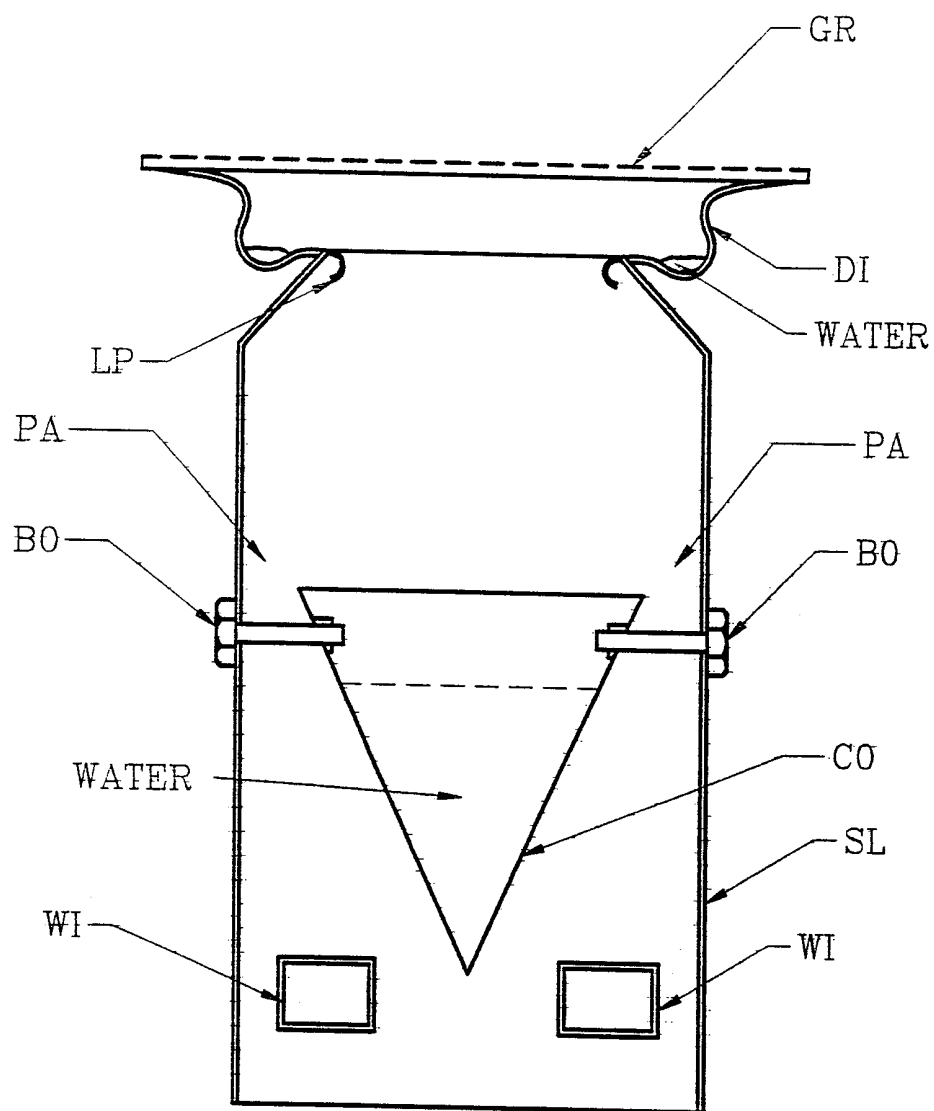


Fig. 3

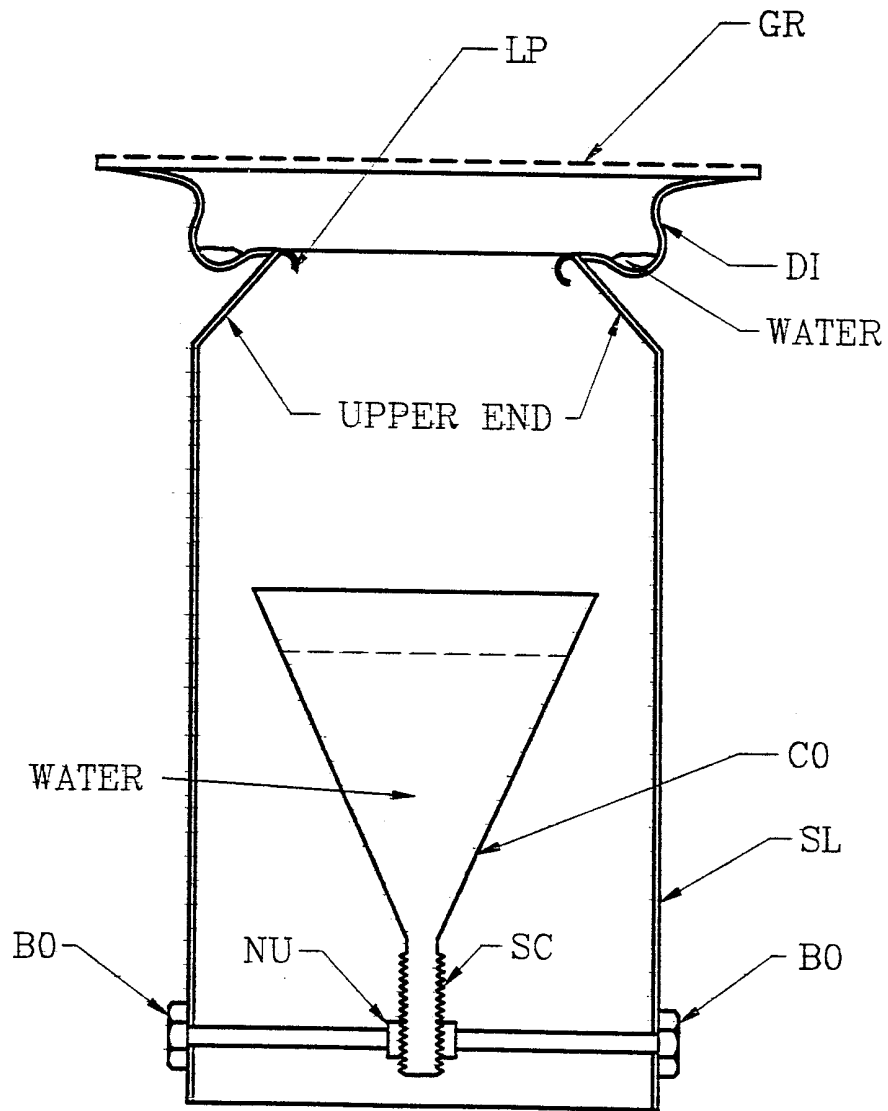


Fig. 4

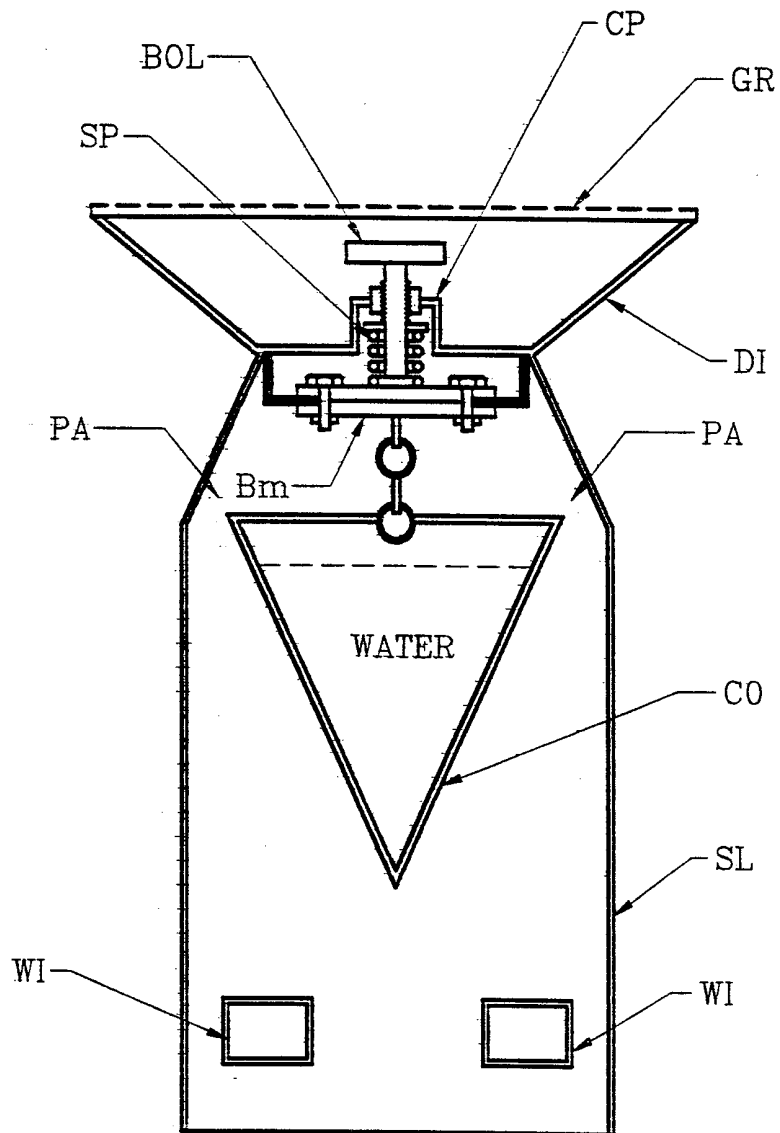


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.
 PCT/IL98/00531

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :A47J 37/00

US CL :99/340, 450, 482

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 99/339,340,352-355,446-450, 481,482; 126/25R, 9R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,299,800 A (ANGELO) 24 January 1967, entire document.	1-5
A	US 4,962,696 A (GILLIS) 16 October 1990, entire document.	1-5
A	US 4,962,697 A (FARRAR) 16 October 1990, entire document.	1-5

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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