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[Continued on next page]

(54) Title: BARBEQUE APPARATUS

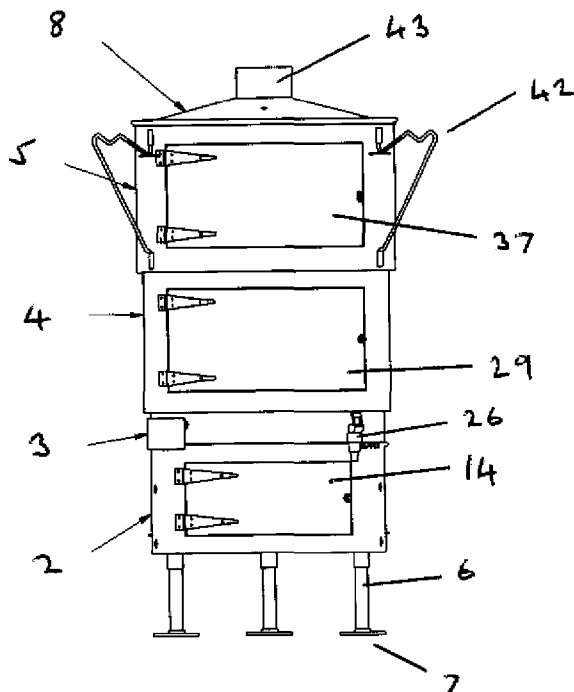


Figure 1C

(57) Abstract: A portable barbecue apparatus (1) comprises a base unit (2) adapted to contain a source of heat, a support structure (6) for the base unit by which the base unit (2) can be mounted outdoors for use, and a plurality of cooking units (3, 4, 5) selectively mountable on the base unit for achieving different types of cooking. A user of the barbecue apparatus (1) is able to attach one or more cooking units (3, 4, 5) to the base unit (2) depending on the required cooking activity. One of the selectively mountable cooking units is a kettle unit (3) capable of holding and dispensing water which is heated by the source of heat until it is boiling.

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— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

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BARBEQUE APPARATUS

This invention relates to a portable barbecue apparatus. There are many types of barbecue apparatus, ranging from permanent garden structures such as that described
5 in US patent 4,702,224 to those such as US patent 5,823,490 which, although able to be moved around and set up anywhere within a restricted area such as a garden, are not designed to be taken to different sites such as when camping etc. The present invention relates to a camping barbecue, and the phrase “portable barbecue” should be understood in this context.

10 It is known to provide for barbecue apparatus which can be easily assembled and disassembled for transportation. The present invention relates to this type of apparatus, but attempts to provide an improvement in flexibility and functionality. Accordingly, a portable barbecue apparatus comprises a base unit adapted to contain a source of heat, a support structure for the base unit by which the base unit can be
15 mounted outdoors for use, and a plurality of cooking units selectively mountable on the base unit for achieving different types of cooking, the user being able to attach one or more cooking units to the base unit depending on the required cooking activity, characterised in that at least one of the selectively mountable cooking units is a kettle unit capable of holding and dispensing water which is heated by the source of heat until
20 it is boiling.

The barbecue apparatus is modular in that any combination of cooking units can be mounted on the base unit, depending on what type of cooking is required. The user therefore does not need to assemble any units not needed for a particular activity. The option of an integral kettle unit capable of boiling water simultaneously from the same
25 heat source means that hot drinks such as tea or coffee can be made, or hot water produced for cooking or cleaning, without the requirement for a separate kettle to be balanced on top of a fire or other heating unit.

According to a preferred arrangement, the base unit comprises a container for a combustible fuel, such as wood or charcoal. Alternatively, the base unit conceivably
30 includes a gas burner, or a burner for some other type of fuel such as vegetable oil or bio-fuel. The cooking units typically consist of a barbecue grill, a pizza stone, and/or a

smoker plate. The barbecue grill is well known in camping stoves, and allows for a variety of food to be cooked. Less well known is to be able to cook pizzas in a barbecue apparatus, but the cooking unit with the pizza stone allows for this to be an option. Finally, the smoker plate allows for smoking foods or for the regulation of oven temperatures. Each of these cooking units is in addition to the kettle unit, which allows for water to be heated for drinks and for other uses.

The cooking units are conveniently sized and shaped so as to be mounted one on top of another to form a stack of cooking units. Each of the cooking units preferably includes an interlocking edge structure such that it can be detachably assembled in combination with any other cooking unit. In this way, the user can assemble only those cooking units required for a particular occasion, in a tower which can be lower or higher depending on the number and combination of units selected. Each of the cooking units conveniently includes a locking mechanism such that it can be locked in place once assembled in combination with any other cooking unit. The locking mechanism conveniently comprises a twist lock mechanism, or alternatively a snap band mechanism. Whichever locking mechanism is employed, the cooking units can be locked in place once assembled, in order to provide a safe and secure structure, especially important when used in an outdoor environment frequently also inhabited by pets and children.

According to a preferred arrangement, each of the cooking units is similar in cross-sectional shape, such that they can be assembled into a consistent and regular structure. Each of the cooking units is preferably also similar in cross-sectional size. Conceivably, each of the cooking units is of a slightly different cross-sectional size, such that they can fit telescopically one inside another, either increasing or decreasing in diameter as the cooking units are assembled one upon another. However, while employing telescopically engageable cooking units of different diameters may assist with storage in allowing one unit to fit inside another, this same feature may restrict the freedom with which any combination of cooking units can be assembled in any order. For this reason it may be preferred to ensure that each of the cooking units has a similar shape and size, thereby preserving the freedom to assemble the units in any combination and in any order. In a particularly simple and effective arrangement, each of the cooking units is circular in cross section.

The base unit is conveniently provided with a door for access to the interior of the base unit, and preferably the cooking units are likewise provided with a door for access to the interior of the cooking unit. This allows easy access not only to the base unit for replenishing fuel, but also to the cooking units for turning food.

5 The kettle unit is conveniently in the form of an annulus, typically conforming to the shape and size of the base unit. The kettle unit is preferably provided with a filling hopper to assist in adding liquid to the kettle unit, and an outlet tap to allow for the dispensing of liquid from the kettle unit. Conveniently, the kettle unit includes one or more vents for allowing steam to escape from the kettle unit. The vents may simply
10 be to avoid excessive pressure building up within the kettle unit, or may conceivably also be designed to cause steam from the kettle unit to enter the cooking unit adjacent the kettle unit, so as to allow for the adjacent cooking unit to perform steam-cooking. The kettle unit may conveniently be formed as a one-piece annular tube, or may alternatively be formed of separate pieces (such as a top-piece, bottom-piece and one or
15 more side-pieces) secured one to another in order to constitute the kettle unit.

The barbecue apparatus conveniently includes a lid capable of being removably located on whichever of the cooking units is at the top of the barbecue apparatus. The lid may conceivably include a flue capable of channelling smoke upwardly out of the barbecue apparatus. It is possible, therefore, that the barbecue apparatus may be used
20 under a cover, for example in the event of inclement weather.

The barbecue apparatus conveniently also includes a plurality of outriggers for use in drying objects placed thereon. These can be used as drying racks for clothing or wet towels, or for holding racks for drying plates etc. The support structure for the barbecue apparatus conveniently comprises a plurality of legs. These legs are typically
25 removably attachable to the base unit, and may conveniently be provided with apertures through which pegs can be inserted in order to secure the legs to the ground on which the barbecue apparatus is situated. It is useful to anchor the barbecue apparatus firmly to the ground, especially when the ground may be uneven or soft.

The invention will now be further described, by way of example only, with
30 reference to the accompanying drawings, in which:

Figures 1A, 1B, 1C & 1D are respectively perspective, plan, front and side views of a portable barbecue apparatus according to the invention,

Figures 2A, 2B, 2C & 2D are respectively perspective, plan, front and side views of a base unit forming part of the portable barbecue apparatus of Figures 1A to 1D,

Figures 3A, 3B, 3C & 3D are respectively perspective, plan, front and side
5 views of a kettle unit forming part of the portable barbecue apparatus of Figures 1A to 1D,

Figures 4A, 4B, 4C & 4D are respectively perspective, plan, front and side views of a first cooking unit forming part of the portable barbecue apparatus of Figures 1A to 1D,

Figures 5A, 5B, 5C & 5D are respectively perspective, plan, front and side
10 views of a second cooking unit forming part of the portable barbecue apparatus of Figures 1A to 1D,

Figures 6A, 6B, 6C & 6D are respectively perspective, plan, front and side views of a lid forming part of the portable barbecue apparatus of Figures 1A to 1D, and

Figure 7 is a perspective view of an alternative embodiment of portable
15 barbecue apparatus according to the invention, shown with all of the doors in an open position.

Referring to Figures 1A to 1D, a portable barbecue apparatus is shown generally at 1, and comprises a base unit 2, kettle unit 3, grill unit 4 and oven unit 5, each
20 mounted vertically one on top of one another. The base unit 2 is supported on legs 6, with feet 7 for stabilising the barbecue unit on the ground. A lid 8 sits on top of the oven unit 5.

Figures 2A to 2D show the base unit 2 in more detail. The base unit comprises a cylindrical sidewall 9, and a base tray 10 on which charcoal or other combustible
25 material can be supported and incinerated. The base tray 10 is provided with a latticework of small apertures 11, and the sidewall 9 has two rows of vents 12 & 13, one below and the other above the level of the base tray 10. The sidewall 9 is provided with a door 14, mounted on hinges 15 and able to be opened in order to allow access to the interior of the base unit 2. A lock 16 is operable to keep the door closed when
30 required. The legs 6 are accommodated within cylindrical mounting tubes 17 attached to the inside of the sidewall 9. The legs 6 are adjustable within the mounting tubes 17 to vary the height that the legs depend below the base unit 2.

The upper edge of the sidewall 9 is provided with an outwardly recessed profile 18 so as to be able to cooperate with the lower edge 19 of the kettle unit 3, shown in more detail in Figures 3A to 3D. The kettle unit 3 comprises a closed cylindrical annulus, made up of inner and outer sidewalls 20 & 21, bottom wall 22 and top wall 23. The top wall 23 is provided with vents 24 capable of allowing steam to exit the kettle unit. The kettle unit 3 is also provided with a hopper 25 through which the kettle unit can be filled with water, and a tap 26 through which heated water can be withdrawn from the kettle unit. A locking mechanism (not shown) either in the form of a twist lock mechanism or a snap band mechanism is provided to lock the kettle unit 3 and the base unit 2 one to the other, with the lower edge 19 of the kettle unit mating inside the recessed profile of the upper edge 18 of the base unit. The upper edge 27 of the kettle unit is again outwardly recessed, so as to receive another unit such as the grill unit 4.

Figures 4A to 4D show the grill unit 4. The grill unit once again comprises a cylindrical sidewall 28, provided with a door 29 mounted on hinges 30 and secured by a lock 31. The interior of the sidewall 28 is provided with brackets 32 on which is mounted a grill tray 33. The brackets 32 are such that the grill tray 33 can be mounted at various vertical positions within the grill unit 4. Once again, the lower edge 34 of the grill unit is sized to locate within the outwardly recessed upper edge of the kettle unit 4, and the upper edge 35 of the grill unit is outwardly recessed so as to receive the lower edge of a further cooking unit such as the oven unit 5. Once again, locking mechanisms (not shown) are provided to lock the kettle unit 3 and the grill unit 4 one to the other, and likewise the grill unit 4 and the oven unit 5 one to the other.

Figures 5A to 5D show the oven unit 5 in more detail. The unit 5 comprises cylindrical sidewall 36, once again provided with a door 37, hinges 38 & lock 39. The interior of the sidewall 36 has brackets 40 on which is mounted a pizza stone 41. As before, the brackets 40 are designed such that the pizza stone 41 may be mounted at different vertical levels within the oven unit 5. Outriggers 42 are attached to the outside surface of the sidewall 36, five outriggers being shown in Figures 5A & 5B. The outriggers 42 can be used to hang various items to dry, such as items of clothing, towels etc. the outriggers being heated by their association with the oven unit 5.

Figures 6A to 6D show the lid 8, the lid being sized to fit on top of any of the grill unit 4 or oven unit 5, whichever is uppermost. The lid is provided with a central

flue 43, comprising an aperture 44 and a surrounding funnel 45. The flue 43 channels smoke out of the top of the barbecue apparatus 1.

In use, the barbecue can be assembled using the base unit 1 and any combination of the other units 3, 4 or 5. Referring back to Figure 2A, the feet 7 are provided with apertures 46 so that pegs (not shown) can be inserted therein in order to secure the feet to the ground beneath the barbecue apparatus 1. The base unit is stocked with combustible material such as wood or charcoal and lit accordingly, causing heating for whichever other units are used in combination therewith. The kettle unit 3 can be used to boil water, e.g. for tea, coffee or other hot drinks, but can also be used in combination with the grill unit 4 with the vents 24 causing steam to vent into the grill unit for steaming food placed on the grill tray 33. Alternatively, the vents can be kept mostly closed, in which case the grill unit 4 acts as a conventional barbecue grill. The oven unit can be employed in addition to the grill unit 4, or as an alternative thereto. The pizza stone 41 can be used to cook pizza or other food requiring a hot flat surface, or the pizza stone can be replaced by a smoker plate (not shown) for smoking foodstuffs placed thereon. Once cooking is completed, and the barbecue has cooled, the barbecue can be disassembled, and stowed away either for transport or until required subsequently.

Figure 7 shows an alternative design of barbecue apparatus 1, with the base unit 2, kettle unit 3, grill unit 4 and oven unit 5 being mostly as previously described. The doors 14, 29 & 37 are shown in their open positions, so that the grill tray 33 and pizza stone 41 are clearly visible. An additional grill tray 47 is shown in the oven unit 5, and the lid 8 has a slightly different design to the one illustrated in the previous figures.

However, the most significant change in the barbecue apparatus of Figure 7 is that the diameter of the various units is not the same as it was in the previous figures. The diameter of the oven unit 5 is greater than that of the grill unit 4, and the diameter of the grill unit 4 is greater than that of the kettle unit 3 or base unit 2. In this way, when the barbecue apparatus is disassembled, the various units can fit one inside another for storage and transportation. This produces a very small profile for the barbecue apparatus in comparison with the volume achievable when assembled, something that is ideal for activities such as camping, for which the present invention is particularly suited.

The present invention provides a portable barbecue which is of modular design, and which also includes a kettle unit for producing heated water for hot drinks and for cooking and washing. It will be appreciated that aspects of the design can be changed or substituted without departing from the present invention. For example, the shape and size of the various cooking units can be changed, either for optimum storage, or for optimum versatility, with the various components being able to be used in different combinations and in a different order. The skilled man will also appreciate that other forms of heating can be employed, such as gas burners or burners of vegetable oil or other bio-fuels, without departing from the scope of the present invention. Various mechanisms for locking the components one to another can be envisaged, and it has not been necessary to describe them all here, as they will be within the knowledge of those skilled in such matters. The key aspects are the modular construction together with the water heating capability, a combination not believed to be satisfied by any construction found in the prior art within this field.

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Claims

1. A portable barbecue apparatus comprising:
a base unit adapted to contain a source of heat;
5 a support structure for the base unit by which the base unit can be mounted outdoors for use,
a plurality of cooking units selectively mountable on the base unit for achieving different types of cooking, the user being able to attach one or more cooking units to the base unit depending on the required cooking activity,
10 characterised in that at least one of the selectively mountable cooking units is a kettle unit capable of holding and dispensing water which is heated by the source of heat until it is boiling.
2. A barbecue apparatus according to claim 1, characterised in that the base
15 unit comprises a container for a combustible fuel.
3. A barbecue apparatus according to claim 1, characterised in that the base unit includes a gas burner.
- 20 4. A barbecue apparatus according to any preceding claim, characterised in that one of the cooking units comprises a barbecue grill.
5. A barbecue apparatus according to any preceding claim, characterised in that one of the cooking units comprises a pizza stone.
25
6. A barbecue apparatus according to any preceding claim, characterised in that one of the cooking units comprises a smoker plate.
7. A barbecue apparatus according to any preceding claim, characterised in the
30 cooking units are sized and shaped so as to be mounted one on top of another to form a stack of cooking units.

8. A barbecue apparatus according to claim 7, characterised in that each of the cooking units includes an interlocking edge structure such that it can be detachably assembled in combination with any other cooking unit.
- 5 9. A barbecue apparatus according to claim 8, characterised in that the each of the cooking units includes a locking mechanism such that it can be locked in place once assembled in combination with any other cooking unit.
- 10 10. A barbecue apparatus according to claim 9, characterised in that the locking mechanism comprises a twist lock mechanism.
11. A barbecue apparatus according to claim 9, characterised in that the locking mechanism comprises a snap band mechanism.
- 15 12. A barbecue apparatus according to any of claims 7 to 11, characterised in that each of the cooking units is similar in cross-sectional shape.
13. A barbecue apparatus according to claim 12, characterised in that each of the cooking units is similar in cross-sectional size.
- 20 14. A barbecue apparatus according to claim 12, characterised in that each of the cooking units is of a slightly different cross-sectional size, such that they can fit telescopically one inside another.
- 25 15. A barbecue apparatus according to any of claims 12 to 14, characterised in that each of the cooking units is circular in cross section.
16. A barbecue apparatus according to any preceding claim, characterised in that the base unit is provided with a door for access to the interior of the base unit.
- 30 17. A barbecue apparatus according to any preceding claim, characterised in that at least some of the cooking units are provided with a door for access to the interior

of the cooking unit.

18. A barbecue apparatus according to any of claims 15 to 17, characterised in that the kettle unit is in the form of an annulus.

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19. A barbecue apparatus according to any preceding claim, characterised in that the kettle unit is provided with a filling hopper to assist in adding liquid to the kettle unit.

10 20. A barbecue apparatus according to any preceding claim, characterised in that the kettle unit is provided with an outlet tap to allow for the dispensing of liquid from the kettle unit.

15 21. A barbecue apparatus according to any preceding claim, characterised in that the kettle unit includes one or more vents for allowing steam to escape from the kettle unit.

22. A barbecue apparatus according to claim 21, characterised in that the one or more vents are designed to cause steam from the kettle unit to enter the cooking unit adjacent the kettle unit, so as to allow for the adjacent cooking unit to perform steam-cooking.

23. A barbecue apparatus according to any preceding claim, characterised in that it includes a lid capable of being removably located on whichever of the cooking units is at the top of the barbecue apparatus.

24. A barbecue apparatus according to claim 23, characterised in that the lid includes a flue capable of channelling smoke upwardly out of the barbecue apparatus.

30 25. A barbecue apparatus according to any preceding claim, characterised in that the apparatus includes a plurality of outriggers for use in drying objects placed thereon.

26. A barbecue apparatus according to any preceding claim, characterised in that the support structure comprises a plurality of legs.

5 27. A barbecue apparatus according to claim 26, characterised in that the legs are removably attachable to the base unit.

28. A barbecue apparatus according to claim 26 or claim 27, characterised in that the legs are provided with apertures through which pegs can be inserted in order to
10 secure the legs to the ground on which the barbecue apparatus is situated.

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Figure 1B

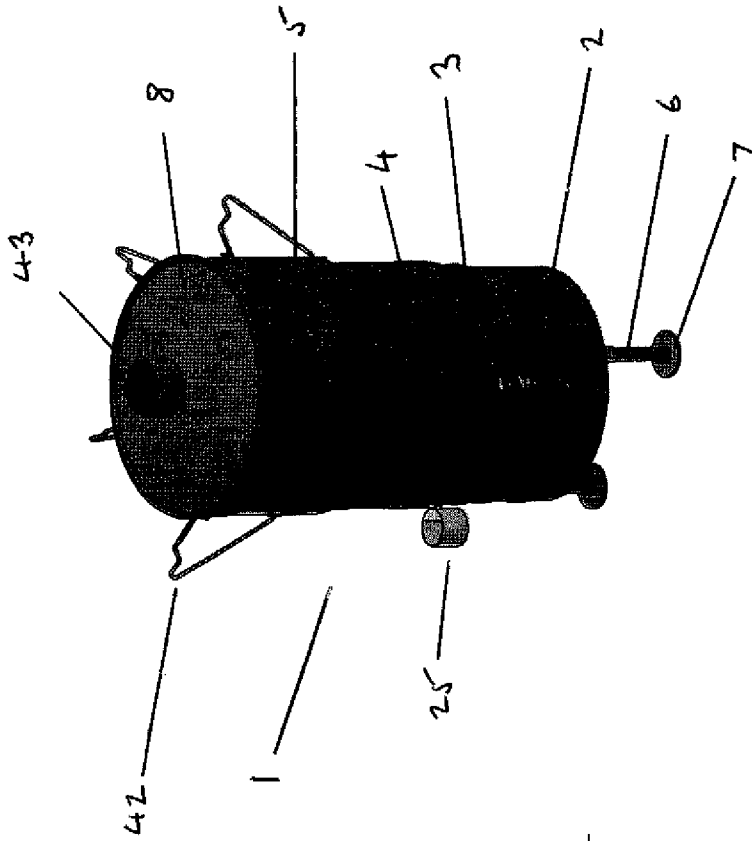
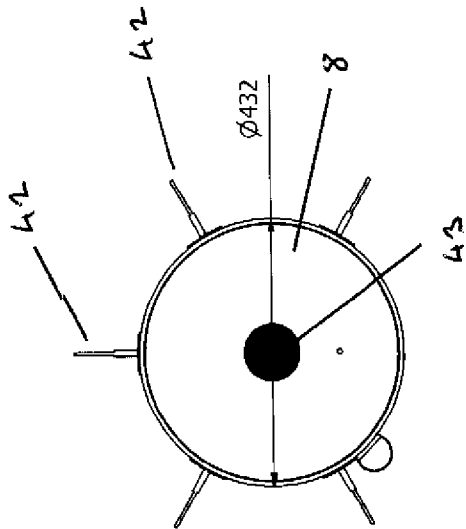


Figure 1A

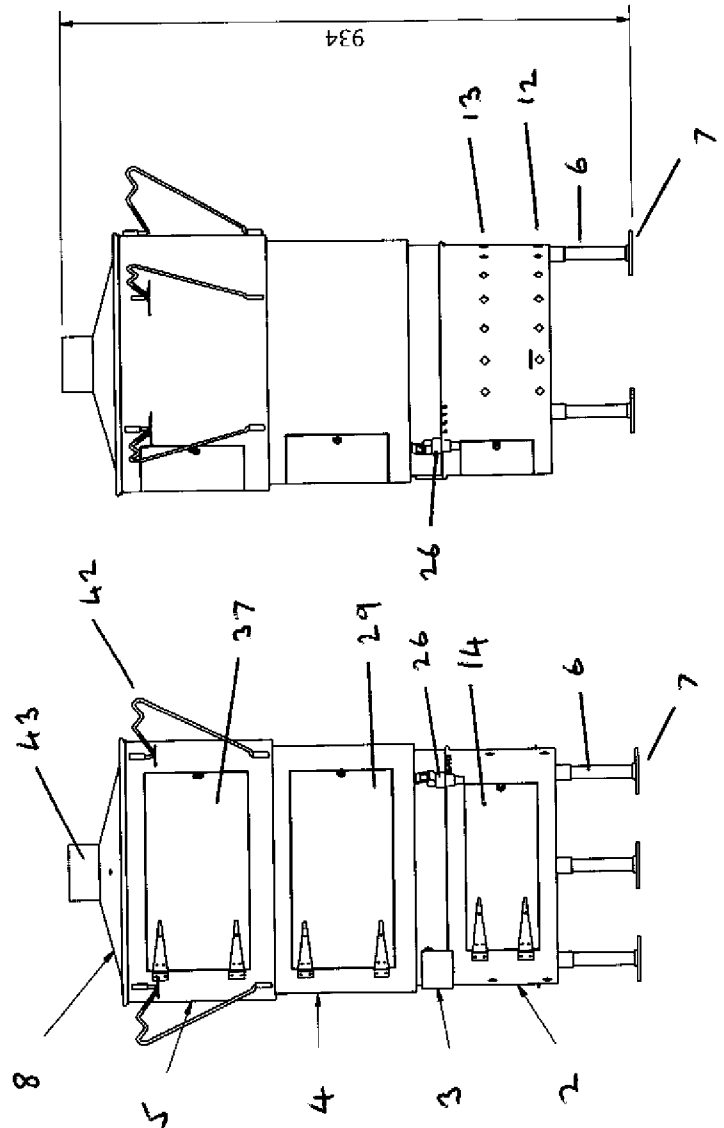


Figure 1D

Figure 1C

Figure 2A

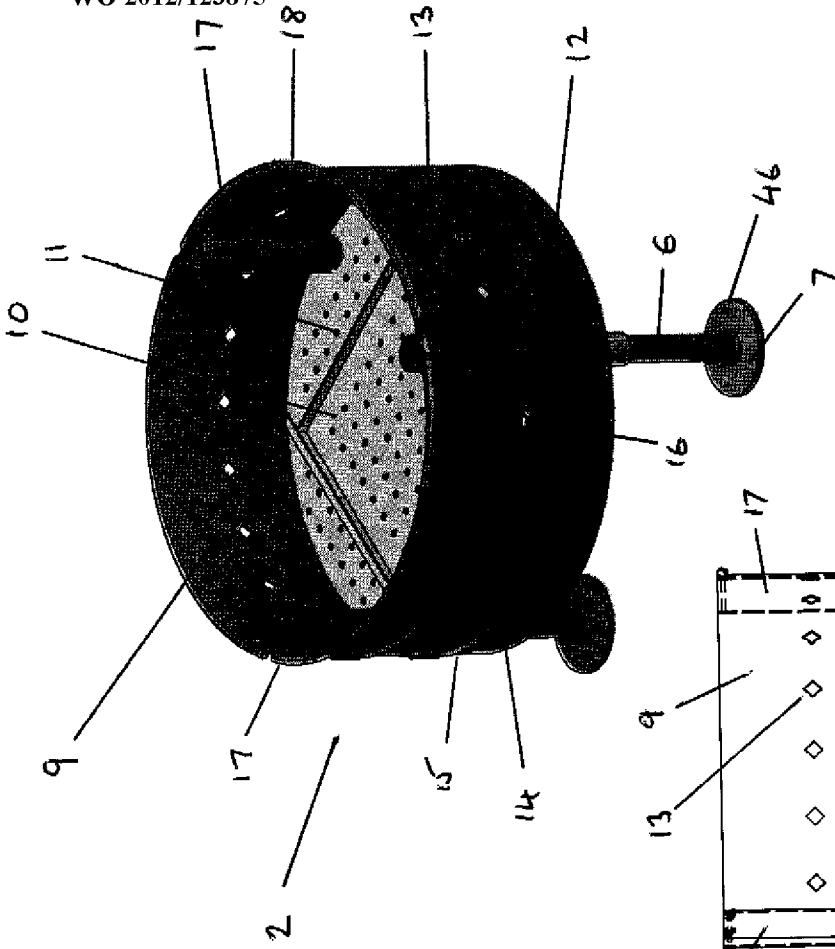


Figure 2B

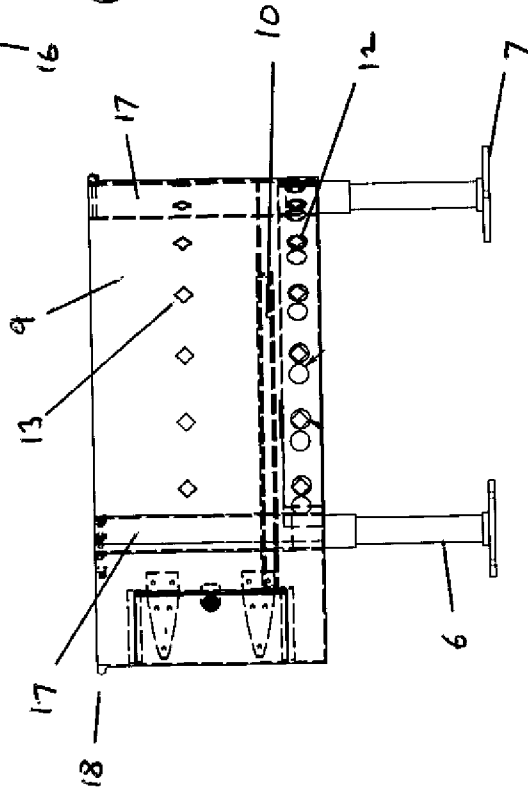
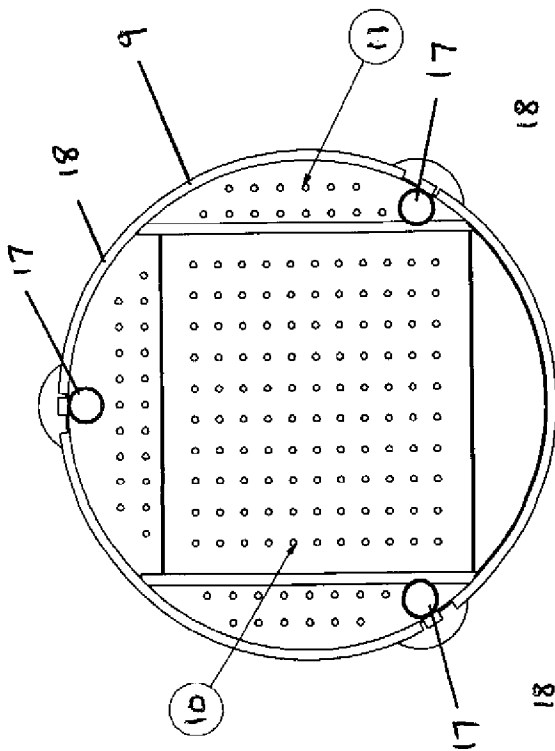


Figure 2D

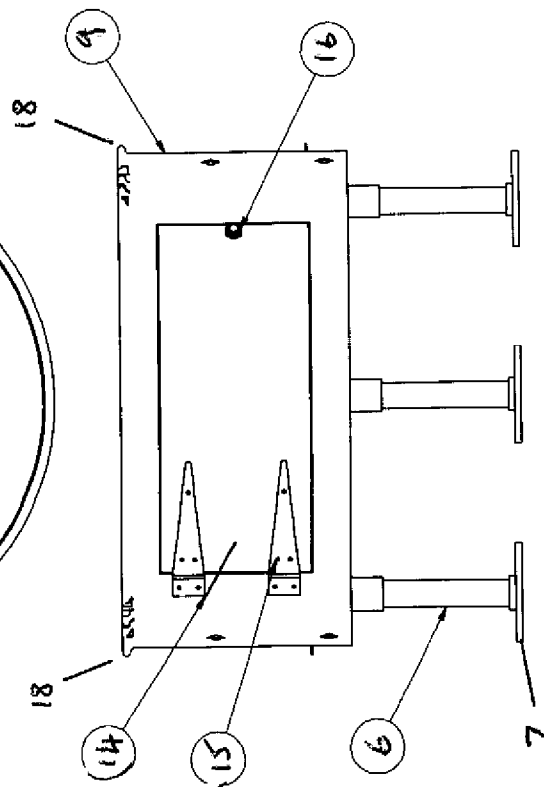


Figure 2C

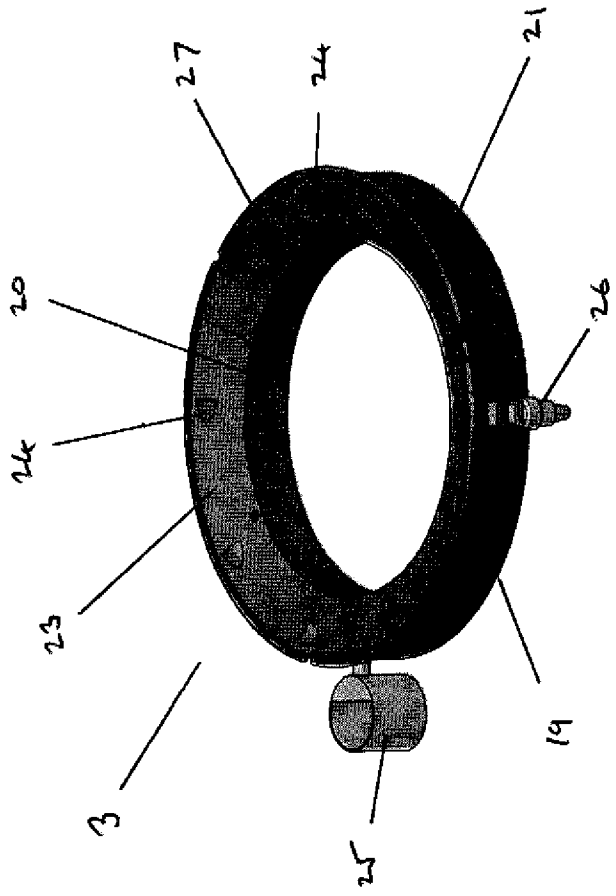


Figure 3A

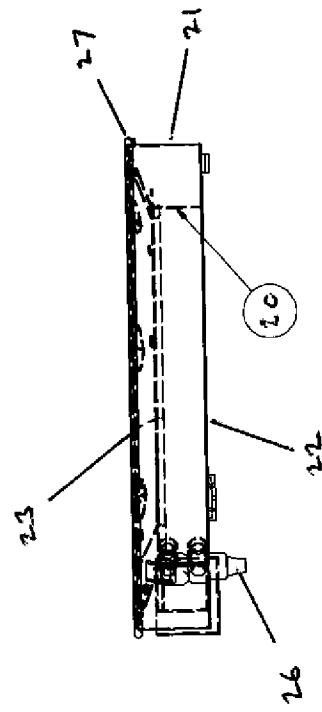


Figure 3D

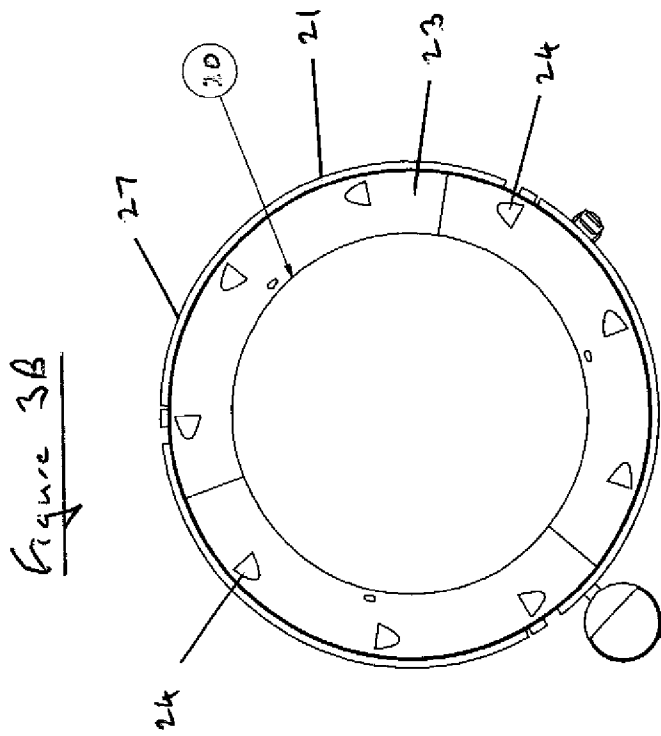


Figure 3B

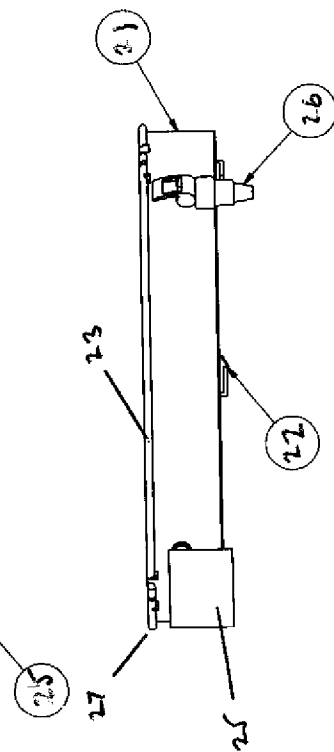


Figure 3C

Figure 4A

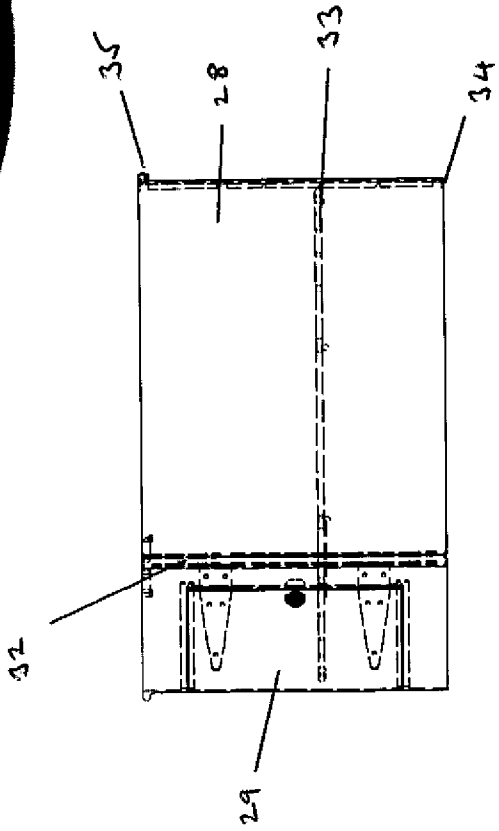
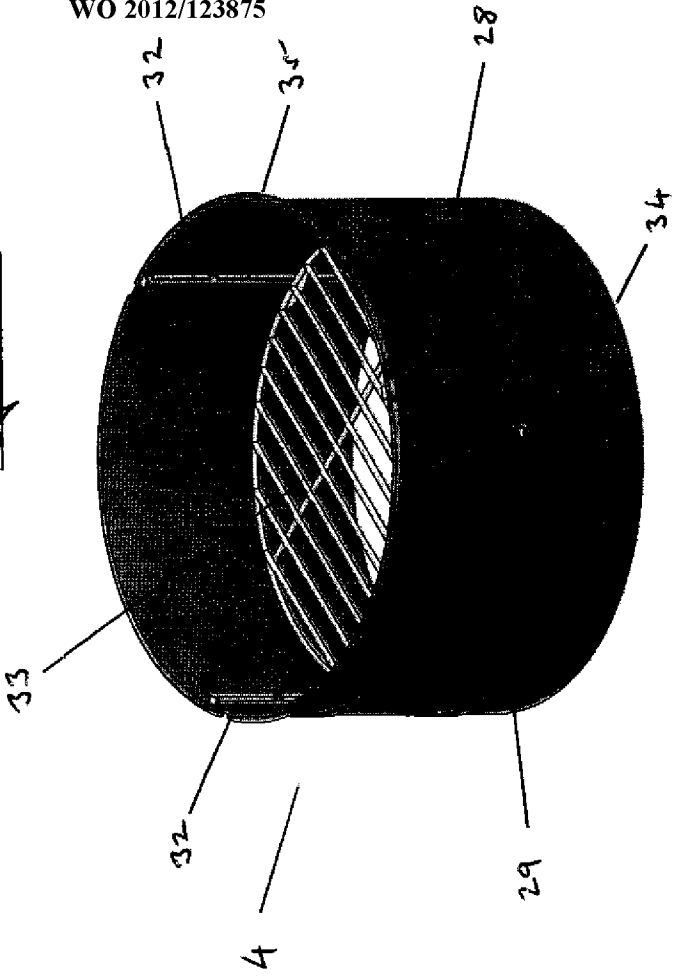


Figure 4D

Figure 4B

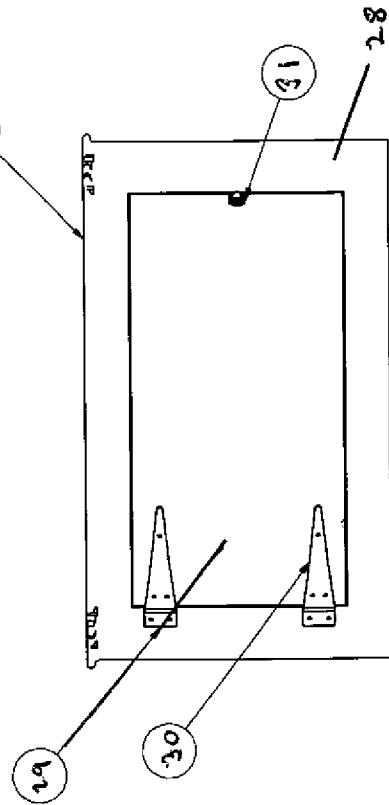
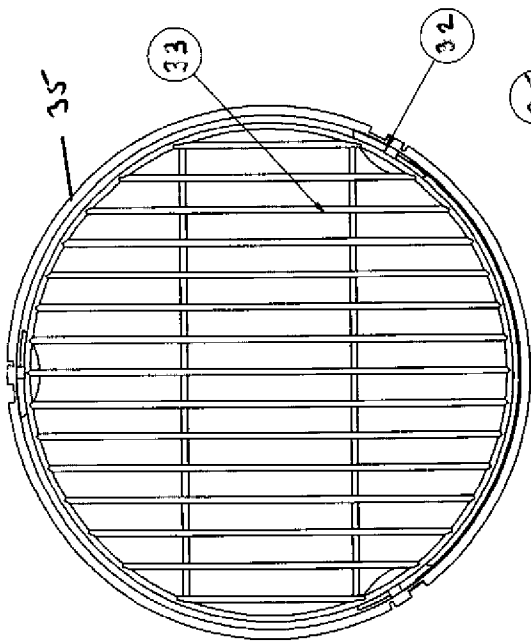


Figure 4C

Figure 5A

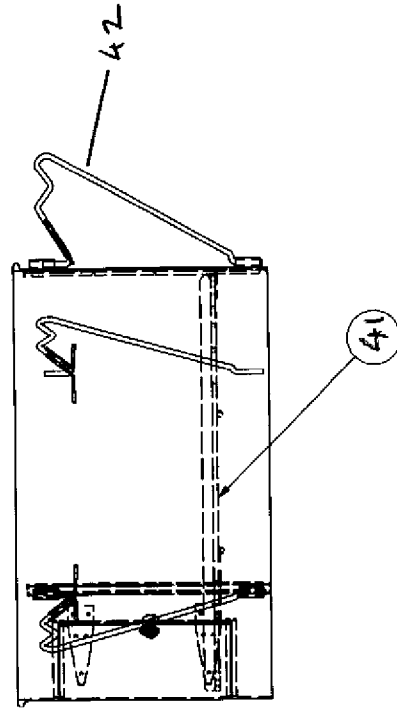
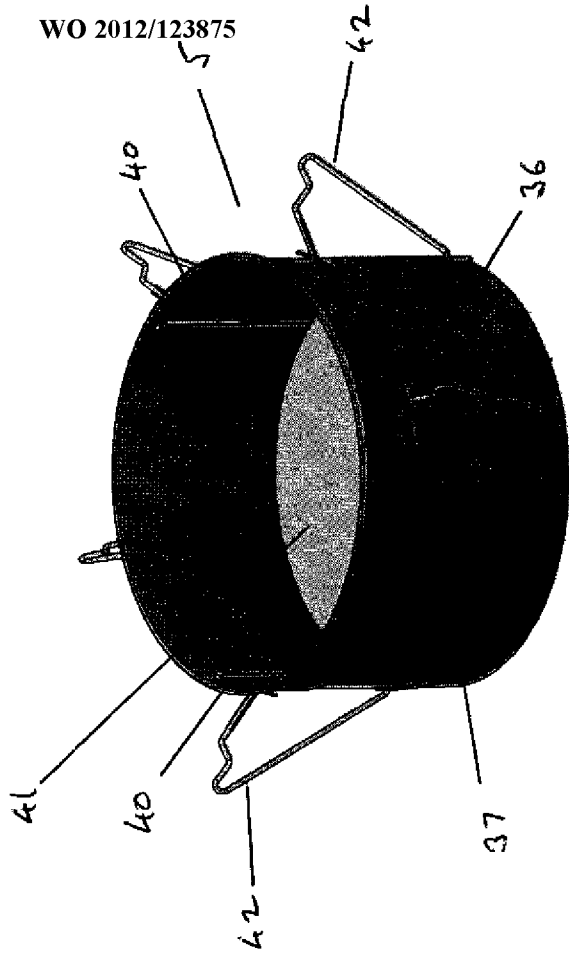


Figure 5D

Figure 5B

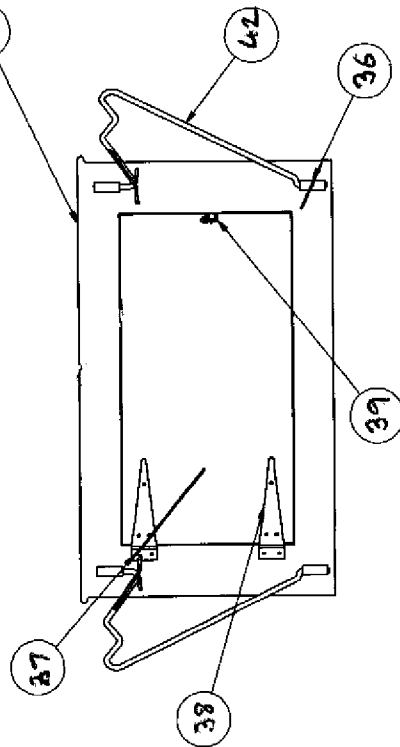
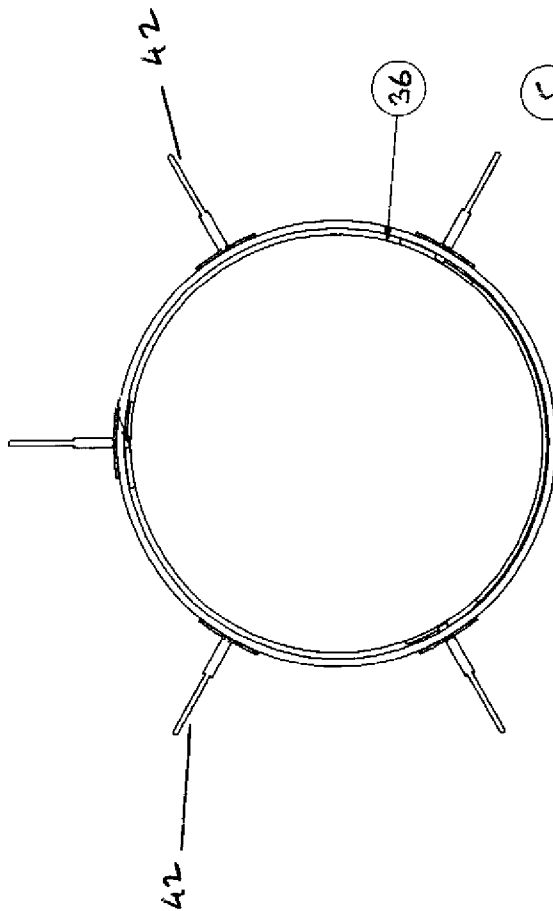


Figure 5C

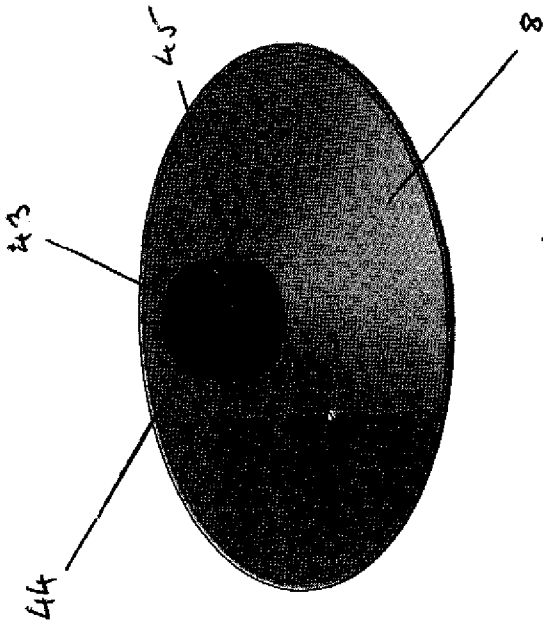


Figure 6A

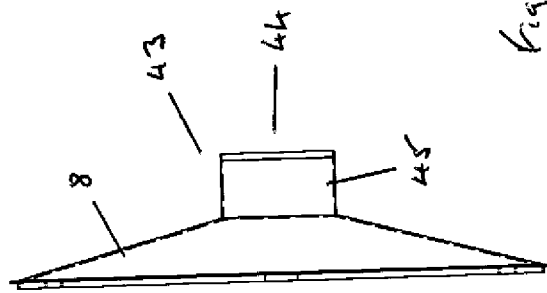


Figure 6D

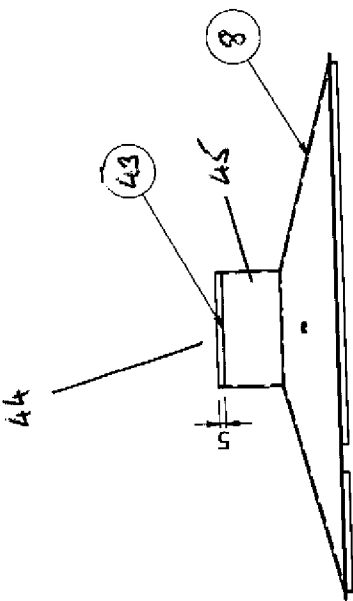


Figure 6B

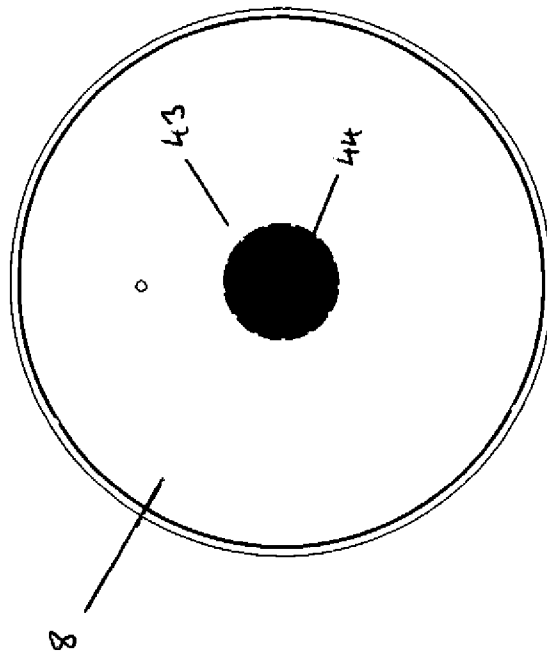
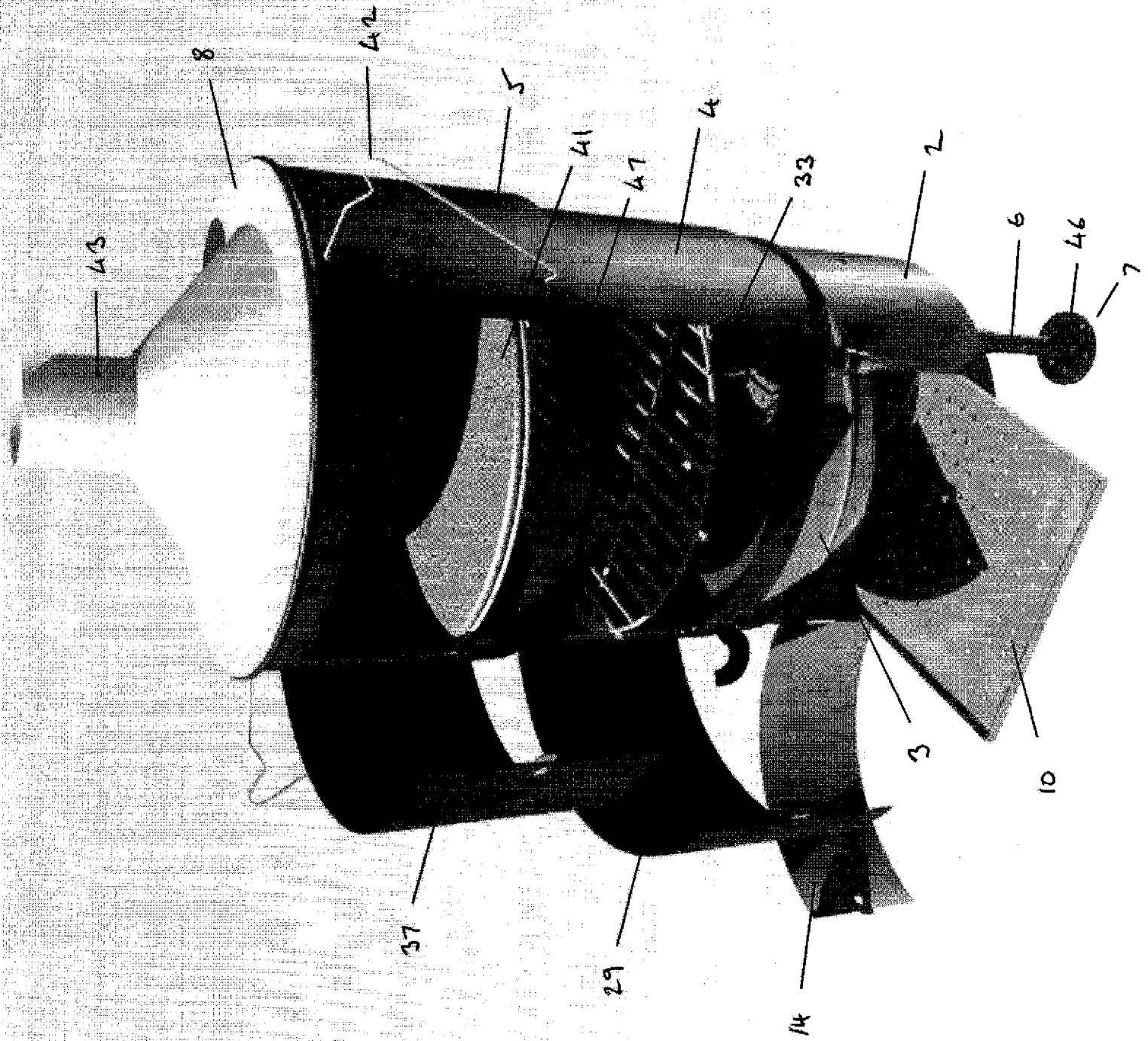


Figure 6C

Figure 7



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/051124

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47J37/07
ADD.
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)
A47J F24B

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)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CH 639 838 A5 (MORET LOUIS) 15 December 1983 (1983-12-15)	1-6,16, 17, 19-22, 25-27 28
Y	abstract; figures 1-3,9 column 1, lines 30-40 column 1, line 64 - column 2, line 39 -----	
X	US 2 487 605 A (SMITH ALVA T) 8 November 1949 (1949-11-08) figure 1 column 2, lines 8-12 -----	1,18
X	US 2005/121018 A1 (ROSEN JACK S) 9 June 2005 (2005-06-09)	1,7,8, 11-13, 15,23
Y	abstract; figures 1-7 -----	9,10,14, 24
	----- -/--	

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

* Special categories of cited documents :

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Date of the actual completion of the international search 31 May 2012	Date of mailing of the international search report 11/06/2012
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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/051124

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 543 435 B1 (REGEN PAUL LEWIS) 8 April 2003 (2003-04-08) abstract; figures 1,2a,2b -----	9,10,14
Y	WO 03/096856 A1 (MCKENZIE JASON CAMERON) 27 November 2003 (2003-11-27) abstract; figure 8 -----	24
Y	GB 2 459 687 A (PAYNE JOHN) 4 November 2009 (2009-11-04) abstract; figure 3c page 3, lines 9-16 -----	28

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2012/051124

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CH 639838	A5	15-12-1983	CH 639838 A5 15-12-1983
			ES 272538 U 16-03-1984
			ES 275388 U 16-02-1984
			ES 275389 U 16-02-1984
			IT 1150480 B 10-12-1986

US 2487605	A	08-11-1949	NONE

US 2005121018	A1	09-06-2005	NONE

US 6543435	B1	08-04-2003	AU 2003243768 A1 19-01-2004
			US 6543435 B1 08-04-2003
			US 2004000303 A1 01-01-2004
			WO 2004003436 A1 08-01-2004

WO 03096856	A1	27-11-2003	AU 765383 B1 18-09-2003
			WO 03096856 A1 27-11-2003

GB 2459687	A	04-11-2009	NONE
