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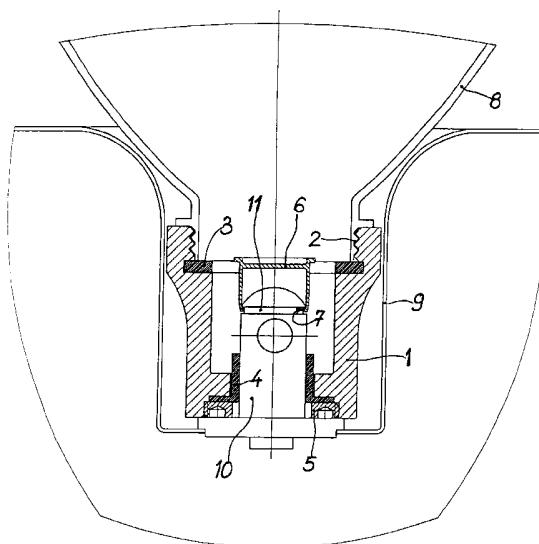
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For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: ADAPTER FOR BOTTLES



(57) **Abstract:** Adapter for bottles with thread for placing on emptying devices is the device by means of which bottles with beverages having on the opening the thread, are connected to the fluid's emptying devices by means of earth gravitation. Figure 4 shows the adapter consisting of a hollow rotation symmetrical body (1) in which inside there is made a watertight screw fastening between the body (1) and the bottle (8), as well as the system for closing and opening the adapter and its acceptance on the emptying device (9). The system consists of the guide (4) fastened through the collar with nut (5) to the body (1) and the stopper (6). Adapter is manually screwed on and off the bottle (8) and is opened and closed with the stopper (6) which is pressed out or in the guide (4) by means of the distributor (10) of the emptying device (9). Adapter may be used together with the emptying device in households, offices, catering objects and all other places where beverages are consumed.

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ADAPTER FOR BOTTLES

Technical Field

This device refers to the adapter, by means of which, bottles with fluid having on
5 the opening a thread, are connected to devices for emptying fluids by means of
earth gravitation.

According to the International Classification of Patents, the invention belongs to
the following field of technique:

- B67D 3/00 – Apparatus or devices for controlling flow of fluids under gravity
10 from storage containers for dispensing purposes.

Background Art

For hygienic and health reasons, it has been mass - used today worldwide
industrially prepared and packed drinking water and other beverages. In order to
facilitate a mass – use of beverages, it was developed the system for bottling,
15 packing and consuming beverages. Beverages are packed in specially designed,
returnable bottles with stoppers, enabling emptying their contents by means of
special devices for fluids' emptying. The connection of a stopper and bottle is
made without thread in the way, that the stopper seats tightly to the bottle neck
opening. Fluids are bottled in bottling plant, when the stopper is changed. The
20 construction solution of the system of stopper and bottle enables the use of
standardized bottles with stoppers, adapted to only one type of bottle. Because of
such a standardized way of closing bottles with stoppers without thread enabling
emptying their contents on devices for fluids' emptying, it is not possible to attach
other types of bottles with stoppers with thread. In the modern offer of finished
25 beverages there is a series of beverages packed in bottles with volume of 1 up to
10 liters with screw-stoppers, which, because of the way of closing, can not be
attached to the fluids' emptying devices.

The invention solves the technical problem of attaching bottles with beverages
closed with screw-stoppers to devices for fluids' emptying.

30 In practice there are no solutions enabling attaching bottles with beverages closed
with screw-stoppers to fluids' emptying devices.

By searching the patents in the base esp@cenet in the group B67D3 referreing to
devices and appliances for management of fluids' flow from vessels because of

gravitation for the purpose of decanting, in the patent literature there were not found any solutions solving the mentioned technical problem.

Disclosure of the Invention

5 Attaching bottles with beverages closed with screw stoppers to devices for fluids' decanting is solved by means of the adapter by which the bottle opening is connected to the device for fluids' decanting.

Adapter is the device, consisting of axial symmetrical hollow cylinder body on which one end there is made internal thread for accepting the bottle with thread and in the inner side there is a system for closing and opening the adapter and
10 acceptance of the adapter to the decanting device.

The adapter is used in such a way, that the stopper is manually unscrewed from the bottle and the adapter is screwed on. The bottle with the adapter is turned in such a way, that the adapter is below, whereby the cap of the adapter makes impossible flowing out the fluid from the adapter. The bottle with the adapter is
15 placed on the distributor of the emptying device, whereby the distributor pushes out the stopper from the stopper's guide and opens the adapter. The fluid from the bottle flows out of the bottle from the emptying device. When lifting up partly or completely emptied bottle from the emptying device, the distributor pushes the stopper in the stopper's guide and in this way closes the adapter, which in this way
20 could temporarily be used as a bottle stoppers.

Figure 1 shows the system of low adapter for bottle with high necks in cross section.

Figure 2 shows in cross section the system of high adapter for bottles with low necks.

25 Figure 3 shows in cross section the adapter from the figure 2. screwed on the bottle opening, with the thread turned downward.

Figure 4 shows in cross section the adapter from the figure 2, screwed on the bottle opening with thread and placed on the emptying device.

Both mentioned embodiments of a low and high adapter have the same
30 construction.

Adapters shown on figures 1 and 2 consist of axial symmetrical hollow body on which one end there is the internal thread for acceptance of the bottle with thread

and in the inside there is a system for closing and opening the adapter and acceptance of the adapter to the decanting device.

The body 1 of the adapter has a form of hollow rotation symmetrical body, which generatrix is the straight line parallel to the axis of symmetry or curve of simple or
5 complex form.

In the inside of one end of the body 1 there is the internal thread 2 which size and profile correspond to the external thread on the bottle opening to which the adapter is attached. The thread 2 ends with the notch in which it is inserted a flat ring sealing 3, laying on the level ring surface.

10 Below the flat ring sealing 3, in the inside of the body 1 of the adapter, there is the structure for closing and opening the adapter and its acceptance to the decanting device. This structure consists of the guide 4, that is by means of a nut screwed in the body 1, fastened to the body 1. The seat of the guide collar 4 and the body 1 makes the watertight connection. The stopper 6 in form of little glas with the
15 bottom turned towards the sealing 3 is by tight seat pressed into the guide 4 with which it makes also the water tight connection. The opening of a stopper 6 ends with the collar 7 with the internal diametar less than the internal diameter of the hollow of the stopper 6.

The adapter, mannually screwed on the opening of the bottle 8 is shown on figure
20 3. The front of the bottle neck 8 seats with the whole front surface on the flat ring sealing 3, making with it the watertight connection. The seat of the guide collar 4 and the body 1, as well as the guide 4 and the stopper 6, also make watertight connections and the adapter screwed on the bottle opening 8 shown on fig. 3, functions as the bottle stopper 8, not allowing flowing out the fluid from the bottle
25 8, when the filled up bottle 8 with the adapter is turned upside down.

The filled up bottle 8 turned upside down with properly fastened adapter and closed system for closing and opening the adapter shown on figure 3 is placed on the decanting device according to figure 4. The decanting device 9 has the recess for accepting standardized bottle stoppers. According to the depth of the recess
30 and the height of the bottle neck 8, the height of the adapter should be chosen in order to provide proper connection and stability of the bottle 8 with the adapter on the device 9.

The bottle 8 with the adapter is placed in the recess of the device 9, so that while lowering the bottle 8 with the adapter, the cylindric distributor 10 goes into the guide 4. While doing that, the top of the distributor 10 comes in the opening of the stopper 6, so that the flexible collar 7 of the stopper 6 jumps into the groove 11 on the top of the distributor 10. Through this temporary separable connection, the stopper 6 remains tied to the top of the distributor 10 also when the distributor 10 presses out the stopper 6 from the guide 4. Setting up is finished when the adapter with the top seats to the bottom of the recess. The distributor 10 makes with the guide 4 a watertight connection and the fluid may flow out of the bottle 8 only through the hole for fluid in the distributor 10, to which place the air is coming in through the hole for air in the distributor 10.

Fully or partly emptied bottle 8 with adapter, may be lifted from the device 9, whereby the remaining fluid shall not flow out of the bottle 8. In course of lifting the bottle 8 with the adapter, the guide 4 firstly covers the holes for fluid and air on the distributor 10 which drags the stopper 6 in the guide 4 to the marginal position, when the collar of the stopper 6 seats on the guide 4, by which the adapter is fully closed and functions temporarily as the stopper of the bottle 8. In this way the manipulation of the adapter is boiling down to manual screwing and unscrewing from bottles without any special tools and without any special preparation of the adapter.

Body 1 and the nut 5 of the adapter, may be made of metal or non-metal materials and the sealing 3, guide 4 and the stopper 6 of flexible polymeric or elastomeric materials with good sealing characteristics.

Adapter for bottles with threads together with the decanting device may be used in households, offices, catering objects and all other places where beverages are consumed. By its application the exploitability of bottles with beverages packed in bottles closed with screw-stoppers shall be extended and facilitated.

CLAIMS

1. Adapter for bottles with thread for placing on emptying devices, by which bottles with beverages closed with screw-stoppers are connected on the opening to fluid emptying devices by means of earth gravitation and taken down from these devices, **characterized in**, that it consists of the hollow rotational symmetrical body (1) in which inside of one end there is made the internal thread (2) which dimensions correspond to the external thread on the opening of the bottle (8) to which the adapter is connected and which ends with the notch in which there is inserted flat ring sealing (3) laying on the level ring surface of the body (1), to which on the other side by the front surface seats the front of bottle neck (8), making a watertight separable connection between the body (1) and the bottle (8) and that in the inside of the body (1) beneath the sealing (3), there is the system for closing and opening the adapter and its acceptance on the emptying device (9) consisting of the guide (4) fastened through the collar with a nut (5) to the body (1) with which it makes the watertight connection and in which with the watertight connection there is pressed in the stopper (6) in form of a little glass which opening ends with flexible collar (7) which internal diameter is smaller than the internal diameter of the hollow of the stopper (6) and the bottom is turned towards the sealing (3).
2. Adapter for bottles with thread for placing on emptying devices according to the claim 1, **characterized in**, that the flexible collar (7) of the stopper (6) goes into the groove (11) on the top of the distributor (10) of the emptying device (9), by which between the stopper (6) and the distributor (10) it is made temporary separable connection, by which the stopper (6) pressed out of the guide (4) while placing the bottle (8) with the adapter on the emptying device (9), remains on the top of the distributor (10) while emptying the bottle (8) with the adapter and is pulled into the guide (4) while lifting the bottle (8) with the adapter from the emptying device (9) and that the distributor (10) with the guide (4) while placing, emptying and lifting the bottle (8) with the adapter, makes a watertight connection.
3. Adapter for bottles with thread for placing on emptying devices according to the claims 1 and 2, **characterized in**, that the body (1) and the nut (5) of the adapter are made of metal and/or non-metal materials and the sealing (3), guide (4) and stopper (6) of polymeric and/or elastomeric materials.

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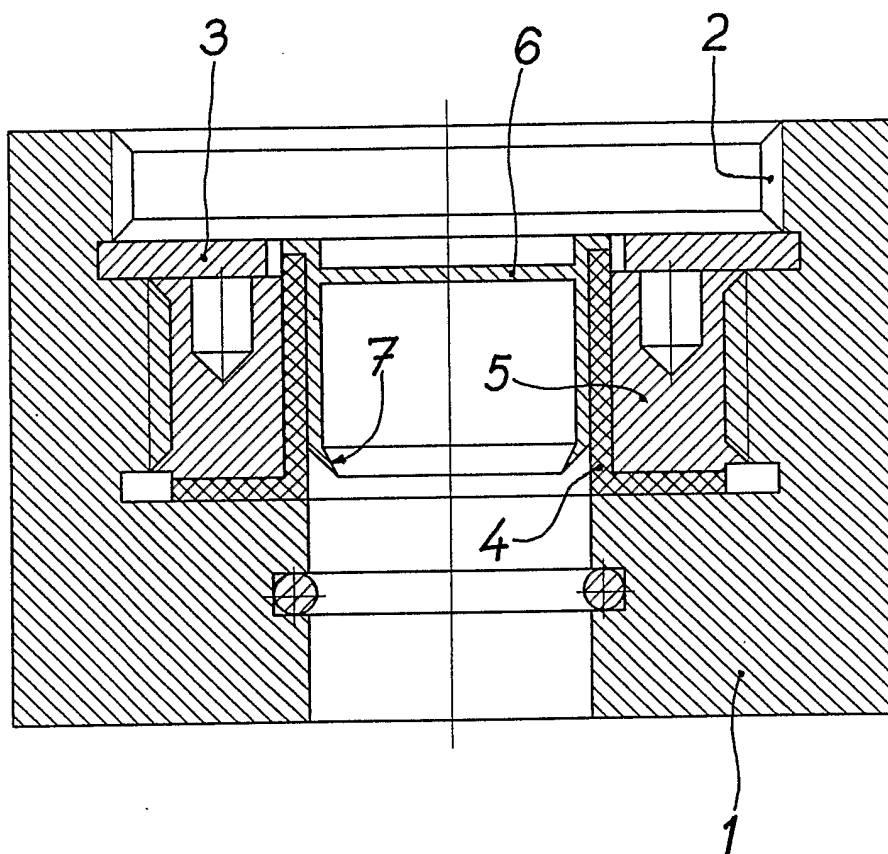


Fig. 1

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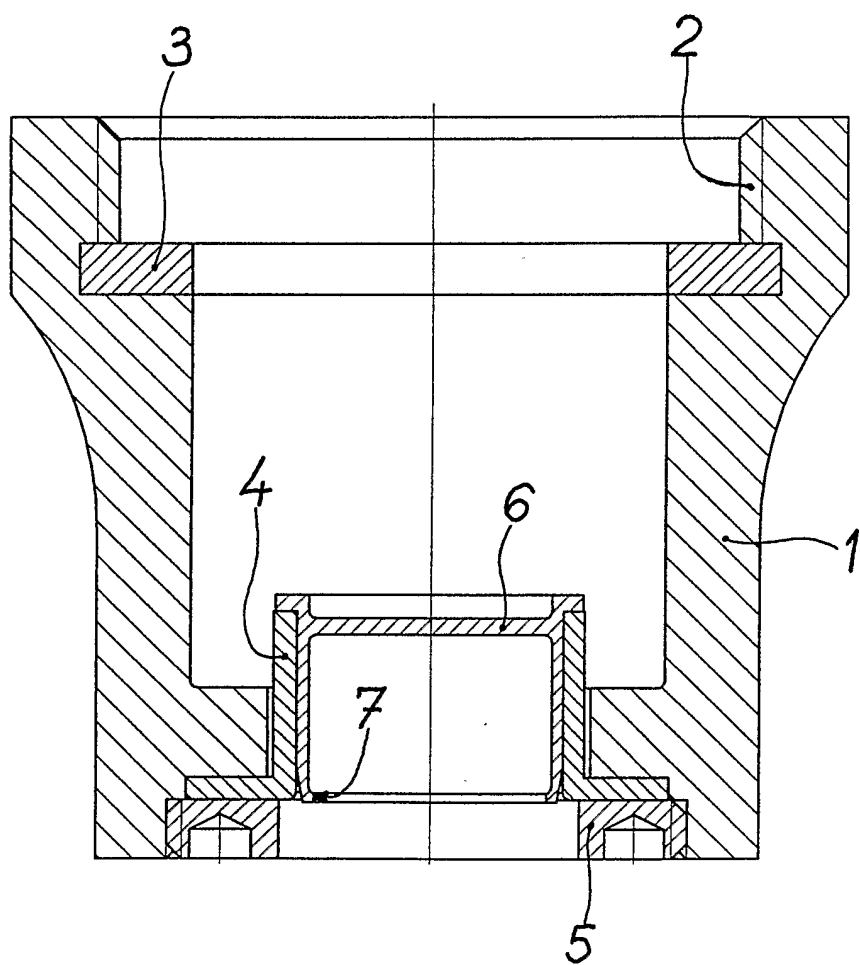


Fig. 2

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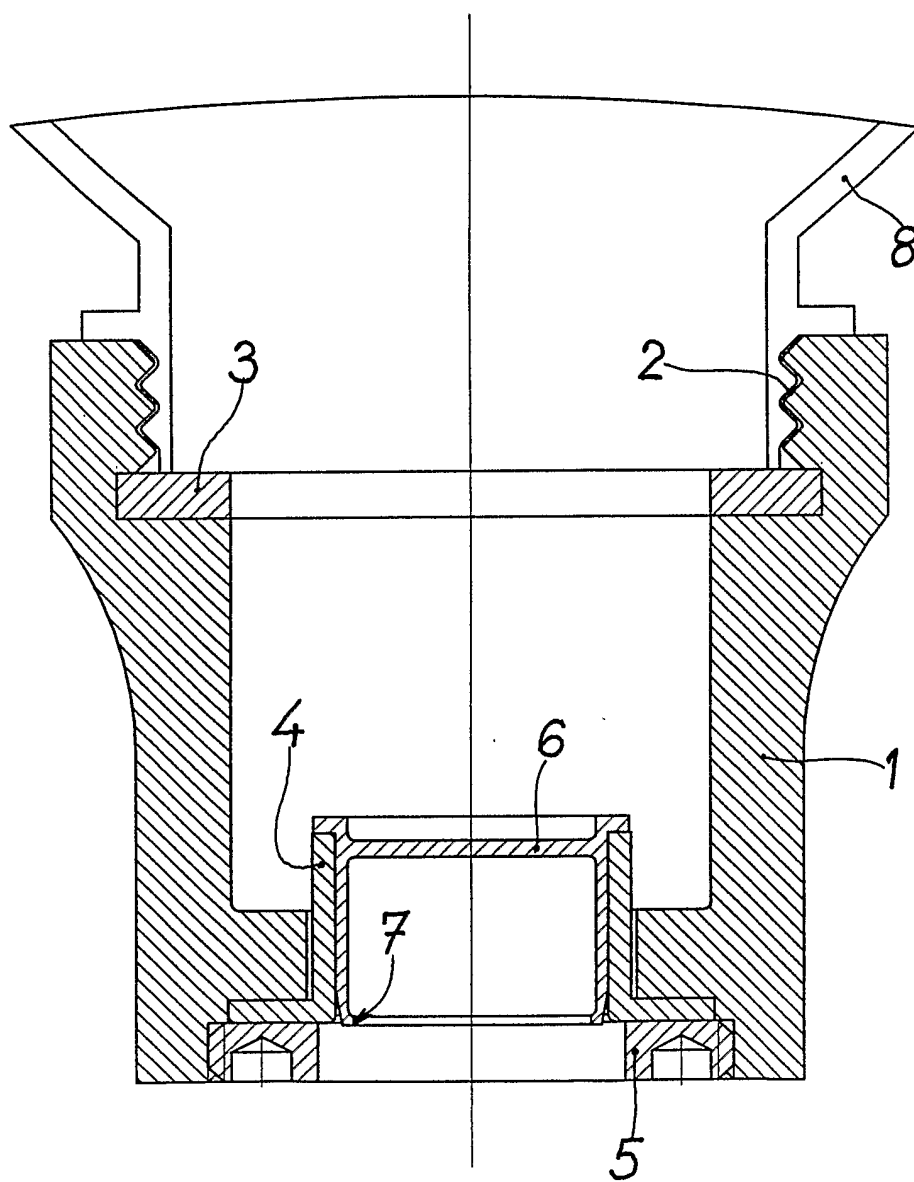


Fig. 3

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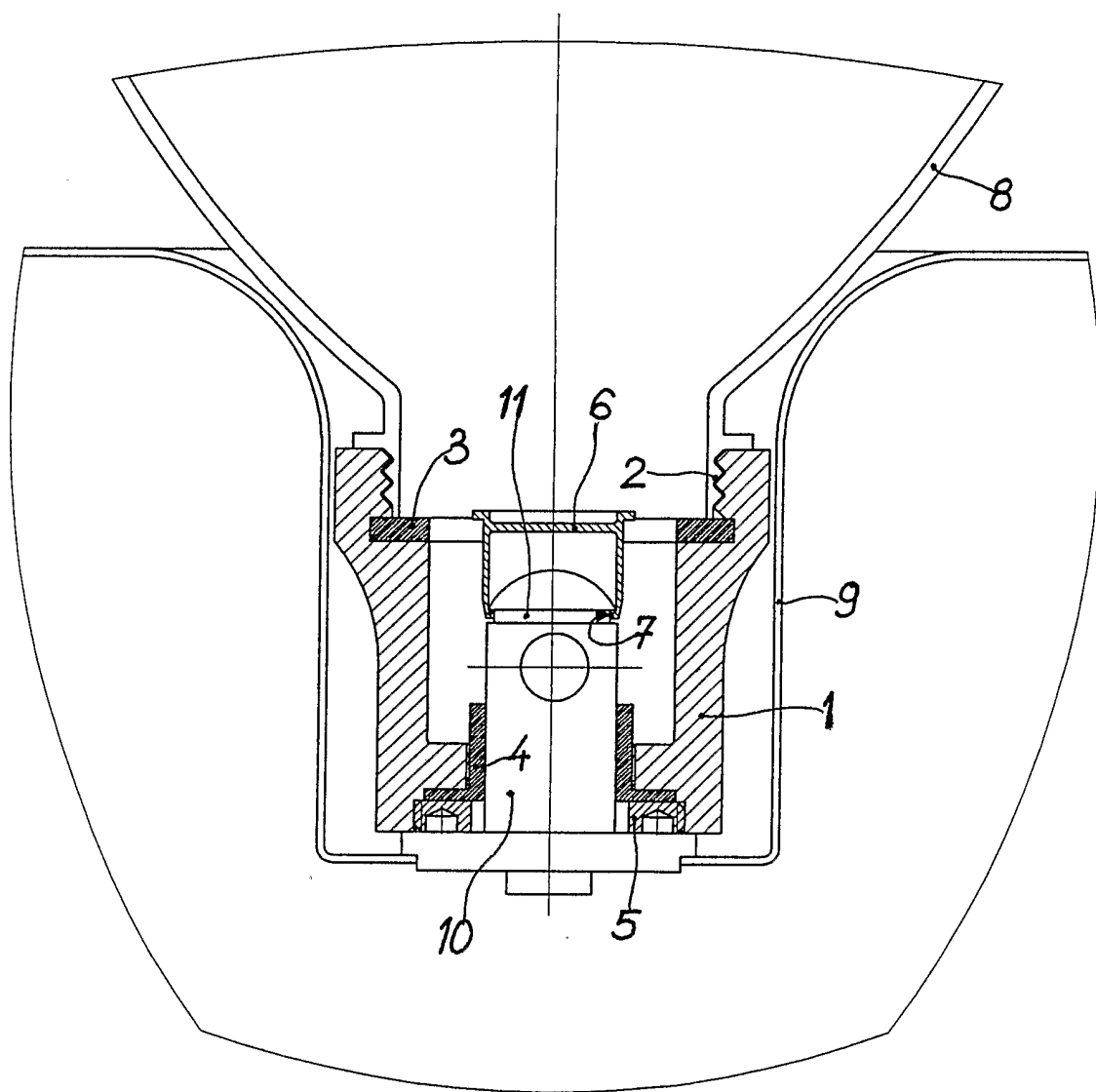


Fig. 4

INTERNATIONAL SEARCH REPORT

International Application No

PCT/HR 03/00021

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B67D3/00

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)

IPC 7 B67D

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 practical, 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.
A	US 5 259 534 A (LYND LARRY G) 9 November 1993 (1993-11-09) column 4, line 49 - line 58 column 6, line 22 - line 48; figures 2,5 ---	1
A	US 5 909 827 A (ADAMS BRIAN M ET AL) 8 June 1999 (1999-06-08) abstract; figure 1 ---	1
A	US 5 431 205 A (GEBHARD ALBERT W) 11 July 1995 (1995-07-11) -----	

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

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International Application No

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