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(54) **Title:** DISPENSER-CAP DEVICE FOR BOTTLES

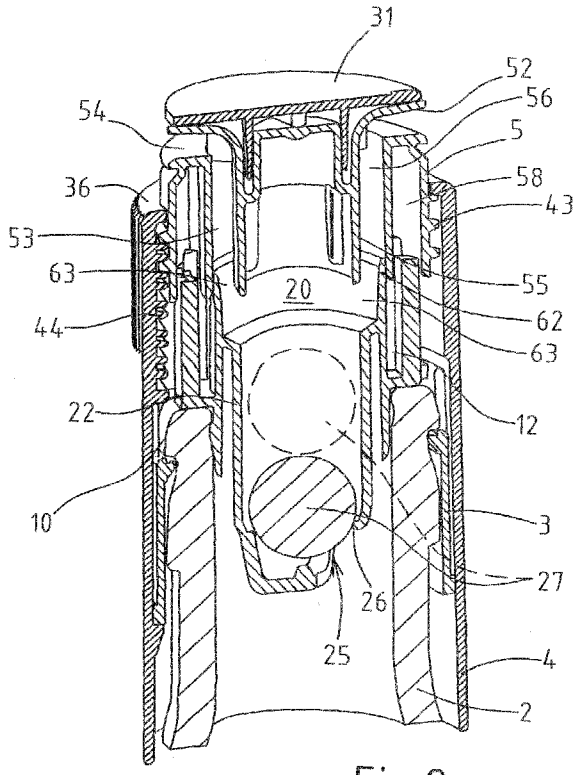


Fig.8

(57) **Abstract:** A dispenser-cap device (1) for a bottle extends substantially along an axis(A) and is formed by: an essentially tubular base body (3), connectable in a fluid-tight manner to a neck (7) of the bottle(2) and having an inner chamber (20); a handle element(4), rotatably coupled to the base body and axially connected to the base body; and a spout element (5) having a channel (51)communicating with the chamber; the spout element (5) is telescopically coupled to the handle element (4) by respective threaded portions (43, 44) and being slidable with respect to the base body (3) along the axis (A) due to rotation of the handle element (4) with respect to the base body (3) for selectively opening/closing a passage (63) between the channel (51) and the chamber (20).

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DISPENSER-CAP DEVICE FOR BOTTLES

TECHNICAL FIELD

The present invention refers to a dispenser-cap device for bottles and in particular for liquor, spirit or other valued beverage bottles.

BACKGROUND ART

It is known that a liquor bottle is generally provided with a screw-cap, that allows the bottle to be frequently opened/closed and in most cases is screwed directly on an outer thread formed on the bottle neck.

In order to prevent the bottle from being re-filled with liquids different from the original one (thus preventing a product of lower quality from being illegally sold in the original bottle), it is known the use of spout elements which are generally inserted in the bottle neck and having the double purpose of both adjusting the quantity of liquid poured and preventing or at least make it difficult a possible bottle re-filling.

In the known solutions, the spout element is usually forced into the bottle neck and can be removed (and in some cases also restored in its original position) quite easily and without damaging the bottle closure with the screw-cap.

Therefore, such solutions are not fully satisfactory.

DISCLOSURE OF INVENTION

It is an object of the present invention to provide

a device which solves the afore-mentioned problems of the prior art; in particular, it is an object of the invention to provide a dispenser-cap device, that is to say a closing and dispensing device for a bottle, that is not only easy and reliable to use and relatively easy and cheap to be realized, but also fully effective in its closing function as well as in preventing the bottle from being re-filled.

The invention accordingly relates to a dispenser-cap device for a bottle as defined in essential terms in attached claim 1 and, for preferred auxiliary features, in the dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is described in details in the following non-limiting embodiment, with reference to the drawings attached, where:

- Figure 1 is a perspective exploded view of a dispenser-cap device for a bottle according to the invention;
- Figures 2 and 3 are longitudinal section views, according to respective planes orthogonal to each other, of the device of Figure 1, assembled;
- Figure 4 shows a detail of the device of Figure 2, sectioned according to plane IV-IV in Figure 2 and with parts excised for clarity;
- Figure 5 is a view of an inner detail of a component of the device of Figure 1;
- Figure 6 is a cross section view of the device of

Figure 1 (specifically, sectioned according to plane VI-VI of Figure 3);

- Figures 7 and 8 are perspective longitudinal section views of the device according to the invention, shown in respective operation positions;

- Figure 9 is a longitudinal section view of a possible variation of the device of Figure 2.

BEST MODE FOR CARRYING OUT THE INVENTION

In Figure 1, reference number 1 indicates as a whole a dispenser-cap device for a bottle 2, for example a bottle of liquor/spirit or another alcoholic beverage.

Device 1 extends substantially along an axis A and comprises a base body 3, a handle element 4 and a spout element 5, preferably consisting of respective plastic material monolithic bodies.

With reference also to Figures 2-4, base body 3 comprises a coupling portion 6 for fastening to a neck 7 of bottle 2, and a guiding portion 8, that projects axially from portion 6 for co-operating with spout element 5; portions 6, 8 are provided with respective axially opposed substantially annular seats 10, 12 positioned around axis A; seats 10, 12 are delimited by respective pairs of coaxial substantially cylindrical side walls joined to each other by an annular flange 13.

Seat 10 is a coupling seat that houses an end rim 14 of the neck 7 and is provided with sealing members 15 for a fluid-tight connection between bottle 2 and base body 3; for instance, the fluid-tight connection is ensured by

a radial interference forced insertion of rim 14 into seat 10: rim 14 is therefore forced inserted with radial interference into seat 10 and sealing members 15 are defined by annular surface portions of a side wall of seat 10 radially co-operating with an inner side surface of rim 14; optionally, side wall of seat 10 provided with sealing members 15 is conically tapered increasing radial interference with rim 14.

Portion 6 also includes axial fastening members 16A and angular fastening members 16B, respectively apt to axially and angularly connect base body 3 to bottle 2 by co-operating with respective elements 17A, 17B of bottle 2.

For example, axial fastening members 16A consist of radially inner protrusions carried from portion 6 at respective slits formed in portion 6 and angularly spaced from one another; protrusions 16A engage irreversibly a lower portion 17A of rim 14; base body 3 is axially connected to rim 14 by means of opposite axial shoulders defined by protrusions 16A and by flange 13 respectively.

As shown in details in Figure 4, angular fastening members 16B are shaped for instance as longitudinal ribs radially projecting from the cylindrical inner wall of connecting portion 6 of base body 3; members 16B engage with teeth 17B radially projecting from neck 7 of bottle 2, thus creating a rotation restraint around axis A for base body 3 and neck 7.

Base body 3 is essentially tubular and is provided

with an inner chamber 20, extending through base body 3 along axis A and delimited by a side wall 21; side wall 21 has a guide section 22, substantially cylindrical, and a top end widened section 23, substantially cylindrical as well and having an inner diameter greater than section 22; section 22 is joined to section 23 by a slanted surface 24 diverging from section 22 towards section 23.

Chamber 20 has an entry opening 25, positioned inside portion 6 and provided with a seal seat 26, and houses a mobile shutter member 27, co-operating with seal seat 26 for closing entry opening 25. In particular, entry opening 25 is substantially circular and shutter member 27 is a sphere that is housed in chamber 20 and is movable substantially along axis A, guided by axial ribs 28 internally formed on side wall 21.

With reference also to Figure 5, handle element 4 comprises a substantially cylindrical, optionally externally knurled, tubular body 30, which is radially and externally fitted with radial clearance on portion 6 of base body 3, and a cover 31 closing an upper end of tubular body 30; handle element 4 is rotatably coupled with base body 3 and is axially connected to base body 3 by means of opposite axial shoulders 32, 33 that project radially inwards from an inner side surface of tubular body 30 and respectively defined, for example, by circumferential hooking teeth engaging a lower edge 34 of base body 3, and by circumferential abutment sectors engaging an upper radially outer edge 35 of flange 13 of

base body 3.

Cover 31 is single-piece integrally formed with tubular body 30 and is connected to an upper peripheral rim 36 of tubular body 30 by one or more connection portions 37, defined for example by bridges, angularly spaced from one another and separated by through cuttings 38. Cover 31 has a central collar 39 protruding inside tubular body 30.

Spout element 5 comprises a hollow body 40 extending along axis A and delimited by a substantially cylindrical side wall 41, having an external side surface 42 provided with a threaded portion 43 that engages a threaded portion 44 formed on inner surface of tubular body 30, and by an upper end wall 45 substantially orthogonal to axis A and provided with an annular groove 46 where collar 39 of cover 31 is fitted.

As shown in details in Figure 5, threaded portion 44 advantageously presents a number of threaded sectors 47 (for example three), angularly spaced from one another and consisting of respective series of radially inner projections 48 altogether defining the thread of threaded portion 44. Preferably, abutment sectors defining axial shoulder 33 are an integral and functional part of threaded portion 44 and specifically of the series of projections 48, being in particular delimited by respective lower end elements of sectors 47 shaped so as to comply with the function of axial connection between handle element 4 and base body 3.

Hollow body 40 is provided inside with a side-exit channel 51; channel 51 is a substantially annular channel extending substantially parallel to axis A and has an exit opening 52 substantially radial with respect to axis A; specifically, channel 51 has an axial section 53 extending substantially parallel to axis A and a radial section 54 bent in a substantially radial direction with respect to axial section 53 and ending with exit opening 52, which is defined by an annular slot formed on external side surface 42 of hollow body 40.

Channel 51 is delimited by a radially inner wall 55 and by a radially outer wall 56, substantially co-axial as to axis A and facing each other and bending towards exit opening 52; walls 55, 56 are connected with each other, in an end part of channel 51 near to exit opening 52, by ribs 57 radially arranged around axis A. Walls 55, 56 are substantially co-axial and radially inner with respect to side wall 41; side wall 41 is separated from wall 56 by a substantially annular gap 58.

As shown in details in Figure 6, wall 56 is housed into seat 12 of base body 3, which seat 12 defines a slide seat for spout element 5 and is provided inside with longitudinal grooves 59 co-operating with respective longitudinal radially outer projections 60 of wall 56 for angularly connecting spout element 5 to base body 3; wall 56 and spout element 5 slide axially, but are angularly blocked, into seat 12.

With reference also to drawings 7-8, wall 55 is

inserted with radial interference within guide section 22 of chamber 20; wall 56 is inserted into seat 12 and is fitted radially external around section 23 with radial interference; interference zones between wall 55 and section 22 and between wall 56 and section 23 define respective radial sealing elements 61, 62 between base body 3 and spout element 5.

Side wall 21 of chamber 20 is thus slidable along axis A in channel 51 and co-operates in a fluid-tight manner with walls 55, 56 of channel 51 by means of radial sealing elements 61, 62 positioned between spout element 5 and base body 3 and for example defined by respective interference zones between side wall 21 of chamber 20 and walls 55, 56 of channel 51 and specifically positioned on opposite faces of side wall 21 for co-operating with respective facing walls 55, 56 of channel 51.

In use, base body 3 is hooked firmly and unmovable to bottle 2 and handle element 4 is rotatably coupled but axially blocked to base body 3 and thus to bottle 2 (Figure 5). Spout element 5 is telescopically coupled to handle element 4 by respective threaded portions 43, 44 and can slide with respect to base body 3 along axis A due to rotation of handle element 4 with respect to base body 3 for selectively opening/closing a passage 63 between channel 51 and chamber 20. In fact, being spout element 5 angularly blocked to base body 3 and so to bottle 2, rotation of handle element 4 causes spout element 5 to slide with respect to base body 3 along axis

A, and moves selectively spout element 5 from a retracted close position (Figure 5), in which spout element 5 co-operates with base body 3 and passage 63 between chamber 20 and channel 51 is closed by side wall 21 inserted in channel 51, to an extracted open position (Figure 6), in which spout element 5 is at a predetermined distance away from base body 3 and passage 63 is open.

When bottle 2 provided with device 1 is opened for the first time, rotation of handle element 4 with respect to bottle 2 also causes the breaking of connecting portions or bridges 37. The breaking of bridges 37 causes the separation between cover 31 and tubular body 30, but collar 39, that interferential engages groove 46 of spout element 5, keeps cover 31 linked to spout element 5 thus advantageously preventing it from being lost in the environment. Moreover, the breaking of bridges 37 due to the first opening of device 1 is a physical sign indicating that device 1 has been violated, thus effectively working as a guarantee seal ensuring the inviolability of content of bottle 2.

Once spout element 5 has been brought into the extracted position (Figure 6), content of bottle 2 can be poured out tilting bottle 2 as usual; shutter member 27 in fact slides, by effect of gravity, into chamber 20 and frees seal seat 26, allowing the liquid of bottle 2 to flow into chamber 20 and channel 51 till exit opening 52.

Slanted surface 24 prevents the formation of liquid-pockets when bottle 2 is brought again to rest in

vertical position.

Sealing elements 61 between base body 3 and spout element 5 work in all usage conditions of device 1, inclusive of opening and closing positions and of all intermediate positions while passage 63 changes from open to closed, so as to avoid leakage of liquid in other zones of device 1 different from the zone specifically designed for this purpose as above described.

The advantages of the device according to the invention in comparison with the prior art solutions are evident from what described.

First of all, the invention device is simple and reliable to use, also allowing a precise adjustment of the quantity of liquid poured out; clearly, by changing number and dimensions of ribs 57, as well as the size of channel 51 and in particular of exit opening 52, it is possible to obtain different pouring modes for the liquid.

The device of the invention is then fully effective in the closing function, preventing the bottle from being polluted by dust or other agents and thus preserving the specific characteristics of the content; the device is also fully effective in preventing the bottle content from being altered, protecting the bottle from the possibility of being fraudly filled with a different content from the original one. In particular, exit opening 52 of spout element 5 compels the liquid to flow out from bottle 2 according to a radial direction; a

radial (side) exit, in addition to making easier the action of pouring out liquid, is also an effective hindrance to fraudulent operations aiming at adulteration/alteration of the liquid in bottle 2 and so makes it an option the presence of shutter member 27 (whose main function is in fact that of hindering a fraudulent filling of bottle 2). Summing up, the device absolutely hits the mark in preventing the alteration of the liquid in bottle 2 thanks to three components only: base body 3, handle element 4 and spout element 5. Anyway, even though the device has no need of a shutter member 27 in order to duly comply with the function of prevention from adulteration of liquid in bottle 2, the device may nevertheless be provided with optional added elements with redundant shuttering function, as for instance the shutter member 27, or even a pair of superimposed shutter members 27, as shown with broken lines in Figures 7-8.

Moreover, the device of the invention is simple and fairly cheap to be realized.

Clearly, the device as described and illustrated herein can be further modified without, however, departing from the scope of the accompanying Claims.

For example, in the variation of Figure 9, where details similar or identical to those already described are identified by the same numerals, device 1, for the rest similar to what previously described, is also provided with a cap 70 radially and externally fitted

around handle element 4 and connected integrally to handle element 4; cap 70 is preferably made of a sheet of metal material, in particular an aluminium sheet, or of suitable plastic materials.

In particular, cap 70 has a substantially cylindrical sleeve portion 71 arranged around tubular body 30 and substantially close-fitting to tubular body 30, and a top end hood 72 substantially orthogonal to sleeve portion 71 and covering cover 31.

Sleeve portion 71 is coupled and integrally connected to handle element 4, for example by means of an upper rolled section of sleeve portion 71 co-operating with a knurled or grooved section of tubular body 30, so as to rotate integral with handle element 4.

Hood 72 has a radially outer peripheral portion 73, connected to sleeve portion 71, and a central portion 74, connected to peripheral portion 73 by weakened circumferential portions 75, angularly spaced from one another and defining breaking zones for separation (detachment) of central portion 74 from peripheral portion 73. Advantageously, weakened portions 75 are radially staggered (and preferably radially external) with respect to cuttings 38 that delimits connection portions or bridges 37 of cover 31, so as to further prevent entry of dust or other agents inside device 1.

Likewise to what previously described, when bottle 2 provided with device 1 is opened for the first time, rotation of handle element 4 integral with cap 70 causes

the breaking of connection portions or bridges 37 as well as of weakened portions 75; while cover 31 remains linked to spout element 5 (by means of collar 39 engaging groove 46 of spout element 5), central portion 74 can if necessary be totally removed from peripheral portion 73.

Not only is cap 70 a further protection for the content of bottle 2 from dust and other contaminants, but it is also, together with handle element 4, a double guarantee seal for the integrity of device 1 and consequently of the content of bottle 2.

CLAIMS

1. A dispenser-cap device (1) for a bottle, extending substantially along an axis (A) and comprising an essentially tubular base body (3), connectable in a fluid-tight manner to a neck (7) of the bottle (2) and having an inner chamber (20); a handle element (4), rotatably coupled to the base body (3) and axially connected the base body; and a spout element (5) provided with a channel (51) communicating with the chamber; the spout element (5) being telescopically coupled to the handle element (4) by respective threaded portions (43, 44) and being slidable with respect to the base body (3) along the axis (A) due to rotation of the handle element (4) with respect to the base body (3) for selectively opening/closing a passage (63) between the channel (51) and the chamber (20).

2. A device according to claim 1, wherein sealing means (61, 62) are positioned between the spout element (5) and the base body (3).

3. A device according to claim 2, wherein the sealing means (61, 62) are radial sealing means positioned between a side wall (21) of the chamber (20) and at least one wall (55, 56) of the channel (51).

4. A device according to claim 3, wherein the sealing means (61, 62) are defined by at least one interference zone between the side wall (21) of the chamber (20) and the wall (55, 56) of the channel (51).

5. A device according to one of claims 2 to 4,

wherein the sealing means (61, 62) are positioned on opposite faces of the side wall (21) for co-operating with respective facing walls (55, 56) of the channel (51).

6. A device according to one of the previous claims, wherein the spout element (5) has a side-exit channel (51).

7. A device according to claim 6, wherein the channel (51) is a substantially annular channel that extends substantially parallel to the axis (A) and has an exit opening (52) substantially radial with respect to the axis (A).

8. A device according to claim 7, wherein the chamber (20) is delimited by a side wall (21) comprising a guide section (22), where a radially inner wall (55) of the channel (51) is slidably inserted, and a widened section (23), facing the exit opening (52) and joined to the guide section (22) by a slanted surface (24) diverging towards the exit opening (52).

9. A device according to one of the previous claims, wherein the chamber (20) is provided with an entry opening (25) having a seal seat (26) and a movable shutter member (27) co-operating with the sealing seat for closing the entry opening.

10. A device according to one of the previous claims, wherein the spout element (5) is joined to the handle element (4) by at least one connection portion (37), that integrally connects the spout element to the

handle element and breaks as the handle element is rotated with respect to the base body (3).

11. A device according to one of the previous claims, wherein the base body (3) comprises a coupling seat (10), provided with sealing members (15) and in which an end rim (14) of the bottle (2) is insertable; and axial fastening members (16A) and angular fastening members (16B), respectively apt to connect axially and angularly the base body (3) to the bottle (2) by co-operating with respective elements (17A, 17B) of the bottle (2).

12. A device according to one of the previous claims, wherein the handle element (4) is axially connected to the base body (3) by opposite axial shoulders (32, 33) that project radially inwards from an inner side surface of the tubular body (30) and engage respective edges (34, 35) of the base body (3).

13. A device according to one of the previous claims, wherein the spout element (5) is axially slidable and angularly integral with respect to the base body (3).

14. A device according to the previous claim, wherein the spout element (5) is coupled to the base body (3) by a wall (56) of the spout element (5) inserted slidably along the axis (A) in a slide seat (12) of the base body (3), said slide seat (12) being internally provided with longitudinal grooves (59) co-operating with respective longitudinal radially outer projections (60) of the wall (56) for angularly blocking the spout element

(5) to the base body (3).

15. Device according to one of the previous claims, wherein the handle element (4) is coupled to a cap (70), preferably made of a sheet of metal material, in particular aluminum, or of plastic material, radially and externally fitted around the handle element (4) and carried integrally rotating by the handle element (4).

16. A device according to the previous claim, wherein the cap (70) comprises a top end hood (72) having weakened portions (75) delimiting a detachable central portion (74).

17. A device according to the previous claim, wherein the weakened portions (75) are arranged radially staggered and preferably radially external with respect to connection portions (37) that connect the handle element (4) to a cover (31) and break when the handle element (4) is rotated with respect to the base body (3).

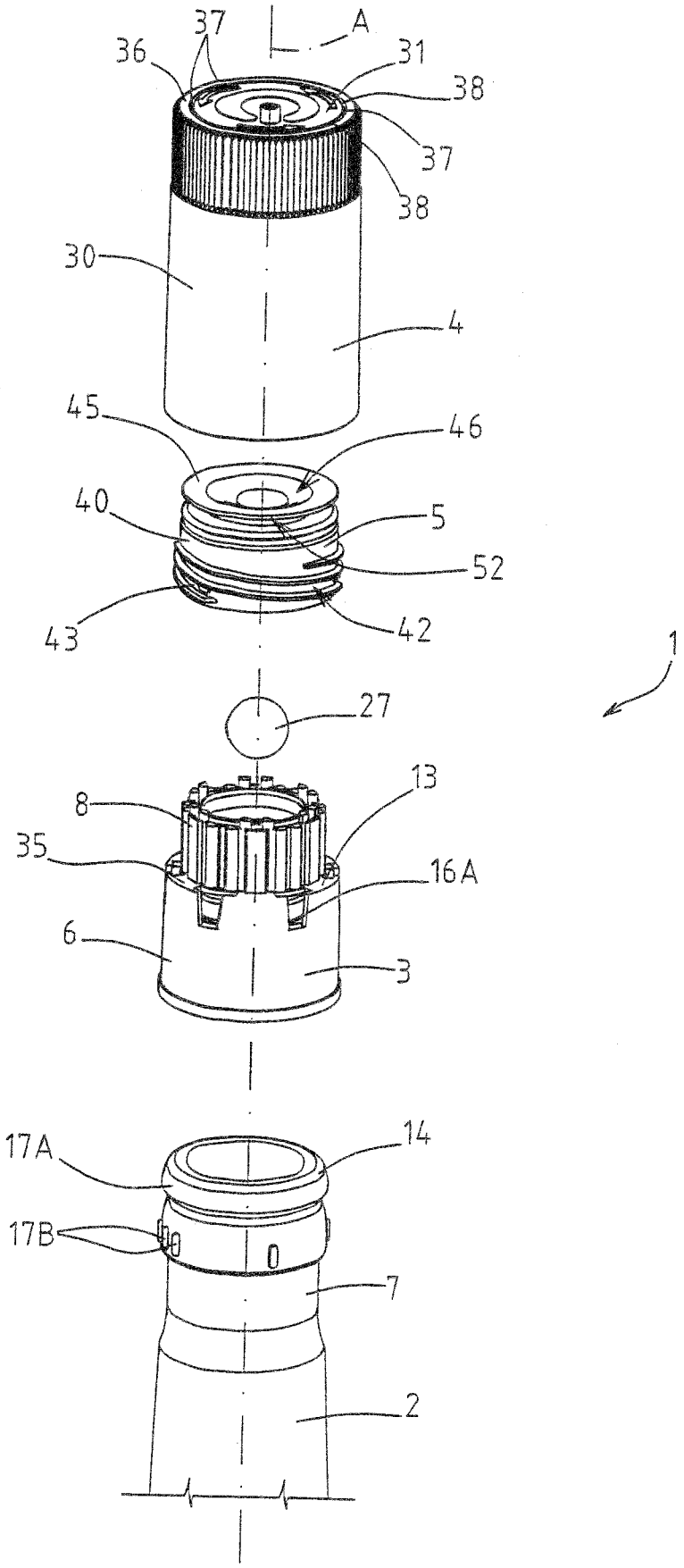

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Fig.1

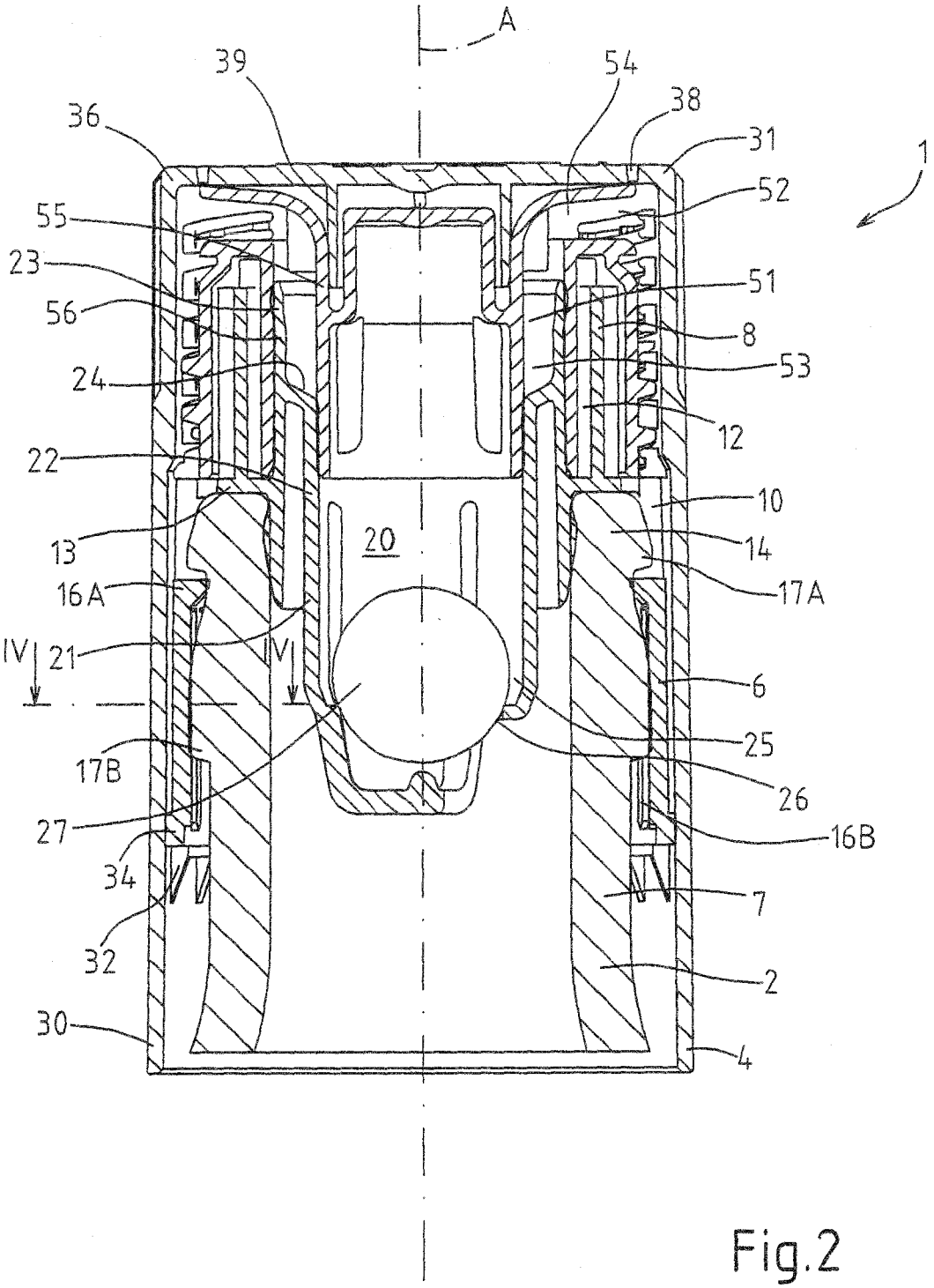

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Fig.2

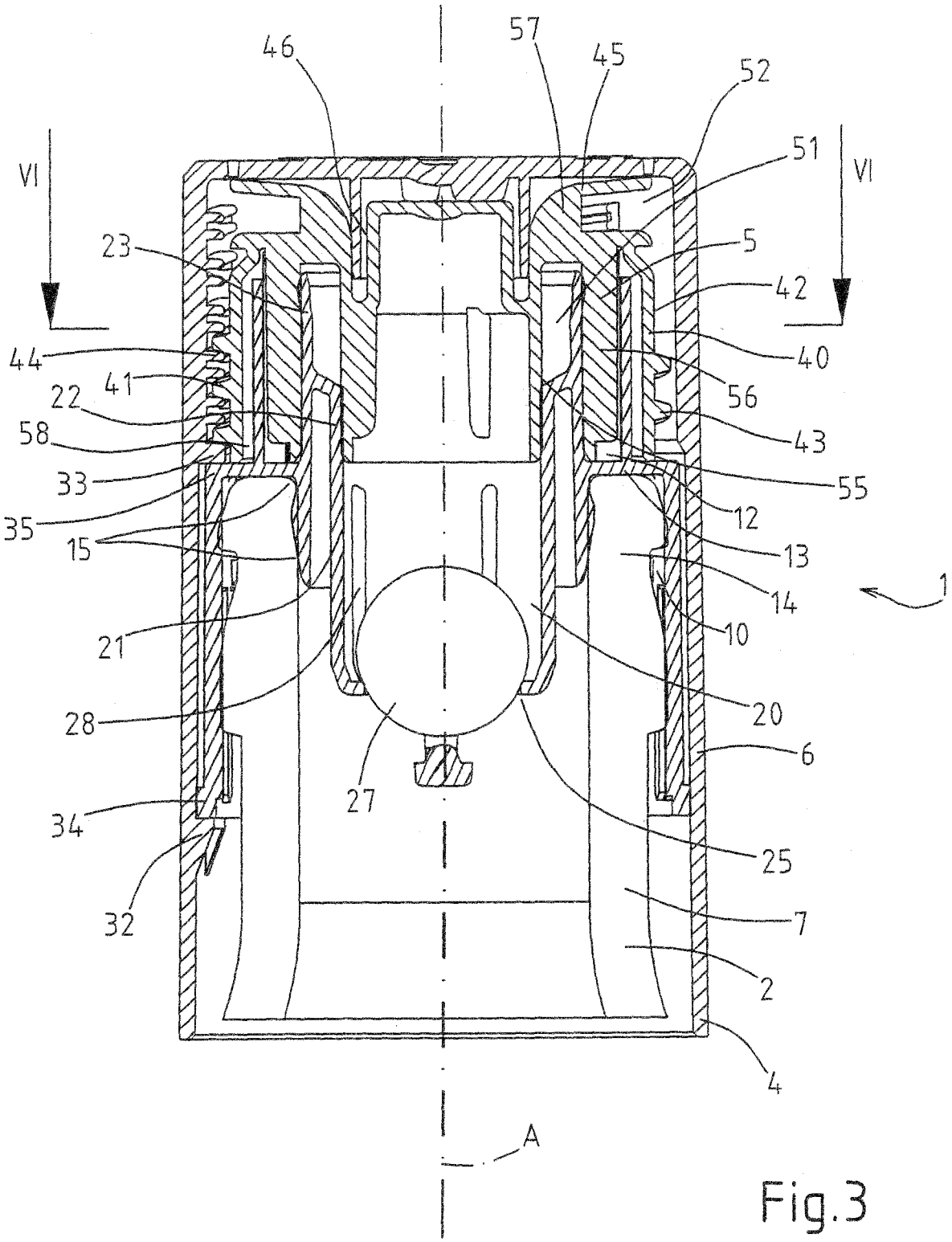

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Fig.3

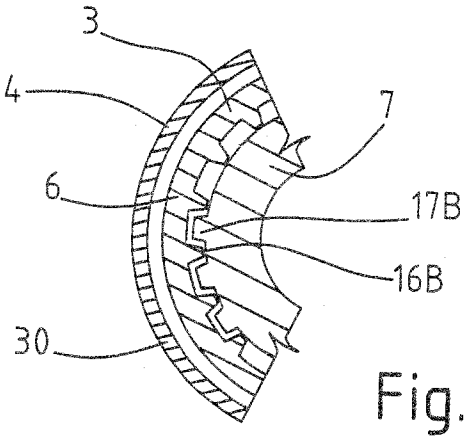


Fig.4

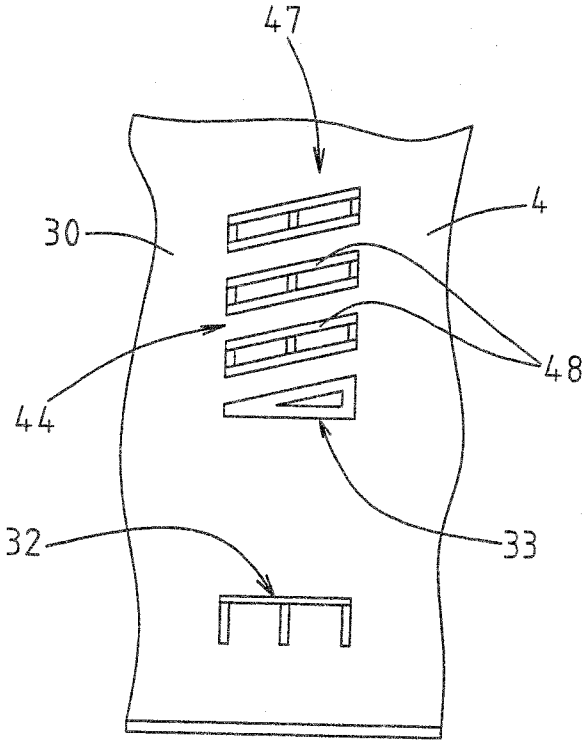


Fig.5

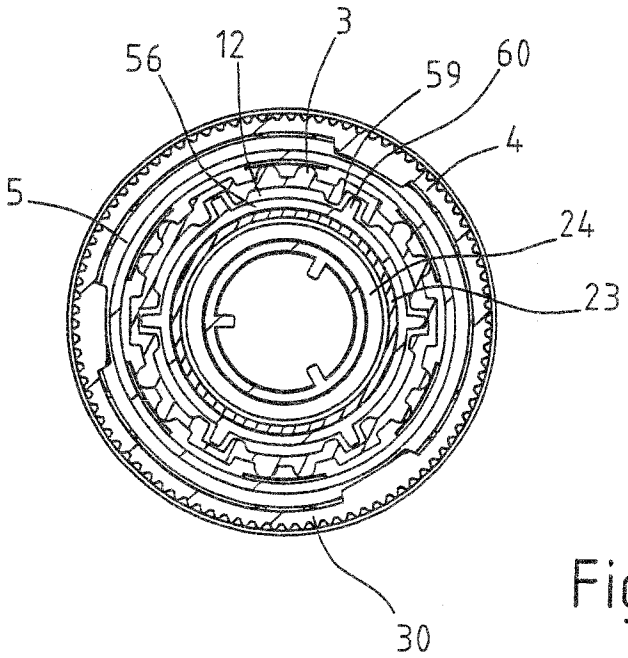


Fig.6

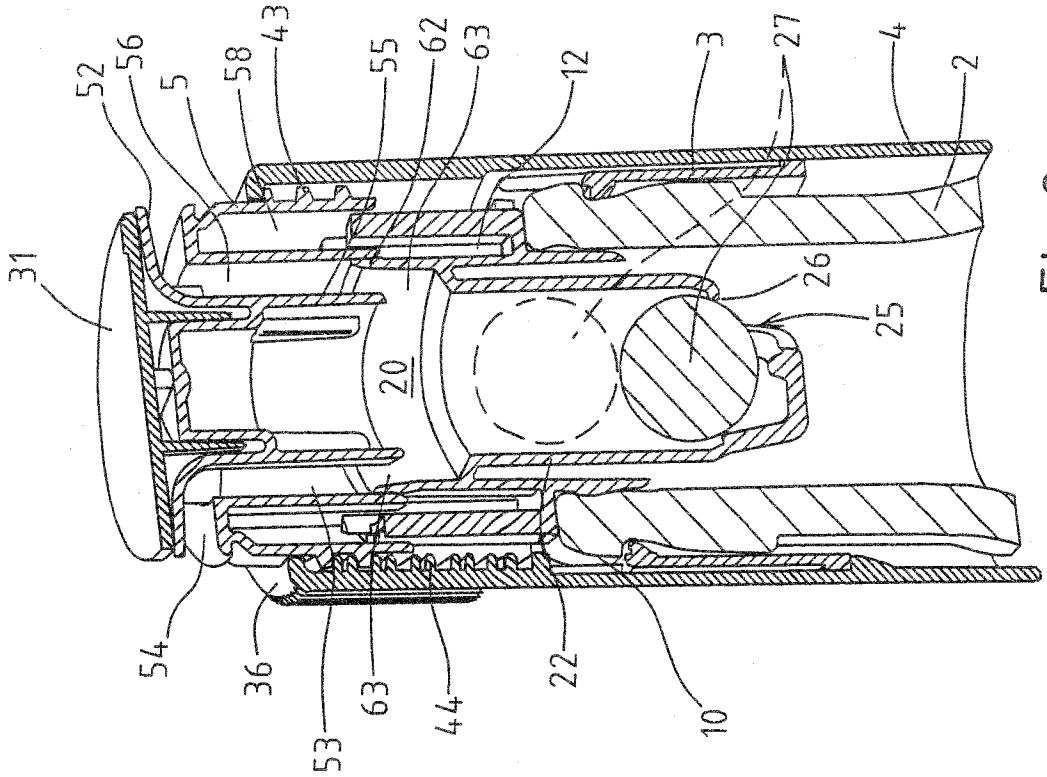

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Fig.8

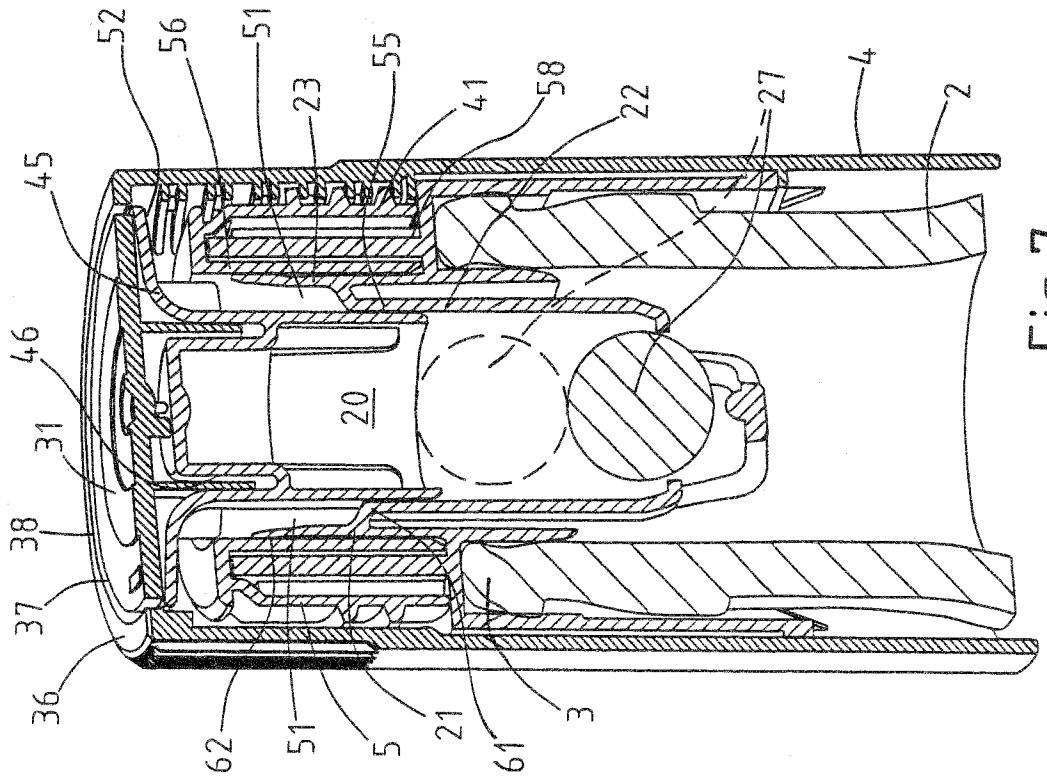

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Fig.7

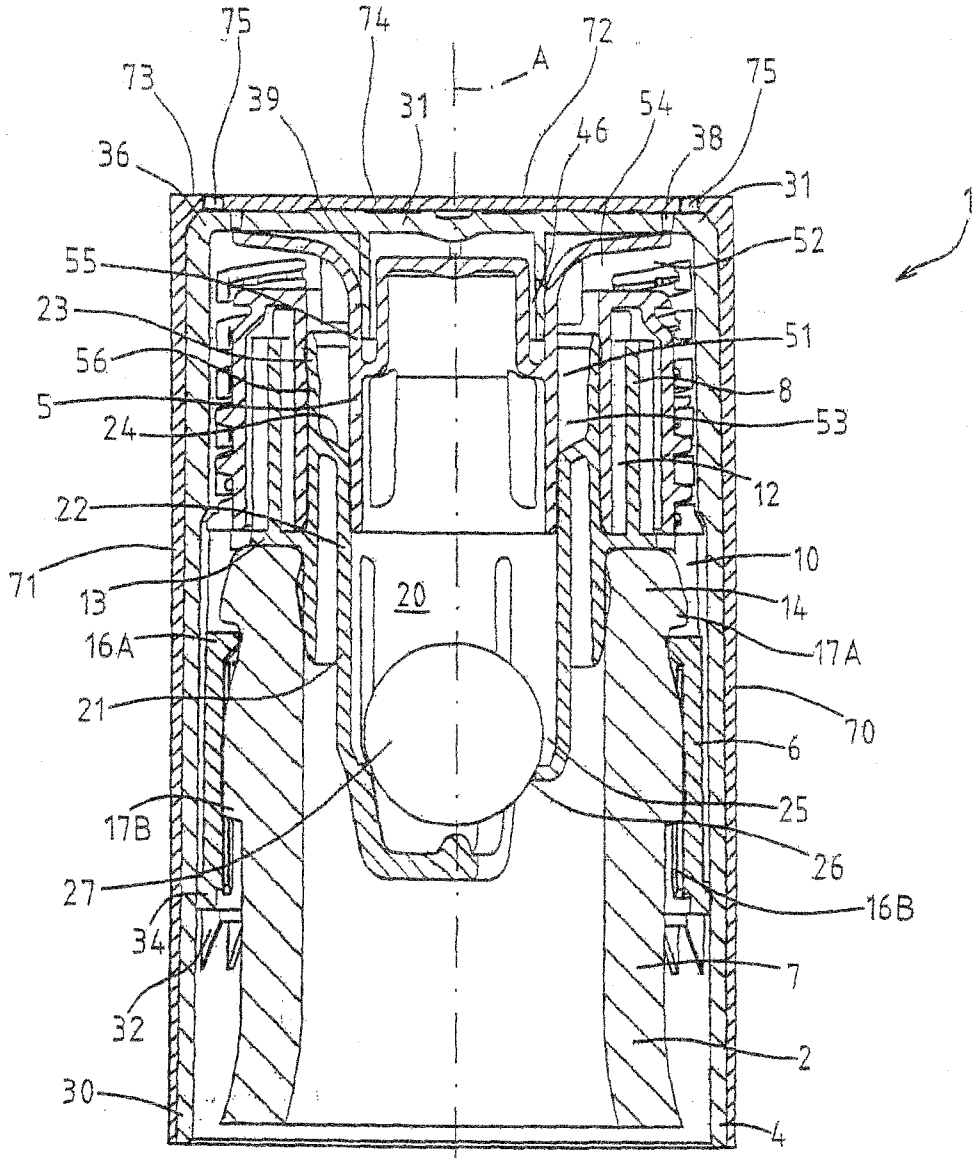

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Fig.9

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2008/052174

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D47/24 B65D49/04

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)
B65D

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.
X Y	WO 2004/089776 A (PLOKHUTA OLEG IVANOVICH [RU]) 21 October 2004 (2004-10-21) page 3, paragraph 4 - page 4, paragraph 4; figure 1	1-5, 9-12, 15-17 6,7
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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
14 May 2008	26/05/2008

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Appelt, Lothar

INTERNATIONAL SEARCH REPORT

International application No
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