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(54) **BEVERAGE CONTAINER COMPRISING A LIGHTING ELEMENT AND METHOD FOR CONTROLLING THE LIGHTING ELEMENT OF THE BEVERAGE CONTAINER**

(57) The invention relates to a beverage container (70,D1), comprising: - a wall, comprising a bottom (21,41,85) wall part and a peripheral wall (22,42,5,83) part standing upright from the bottom (21,41,85); and- a lighting element (44) arranged on or in the wall;- a sound sensor; and- a control for controlling the lighting element (44) on the basis of the sound measured with the sound sensor. The invention further relates to a method for controlling the beverage container (70,D1) provided with a lighting element (44).

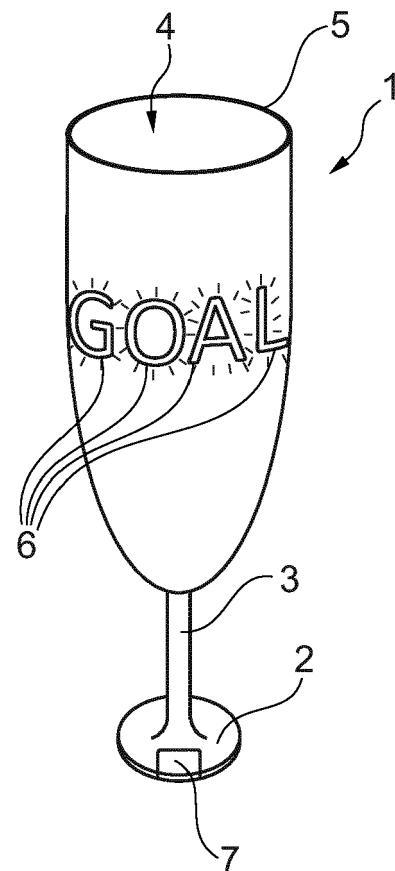


Fig. 1

Description

[0001] The invention relates to a beverage container, comprising:

- a wall, comprising a bottom wall part and a peripheral wall part standing upright from the bottom; and
- a lighting element arranged on or in the wall.

[0002] Beverage containers such as glasses, cups, beverage cans and bottles are generally known. The wall at least partially surrounds a reservoir here, and a beverage can be stored in the reservoir, which beverage can be consumed from the beverage container, for instance by bringing the upper edge of the peripheral wall part of the beverage container up to the mouth.

[0003] It is known to provide beverage containers with lighting elements which can emit light, with the object of having such beverage containers cause an increased stimulation of the human senses. These are provided with a switch for switching on the lighting elements. It has however been found that the heretofore usual lighting elements have been found insufficiently capable hereof.

[0004] It is now an object of the invention to reduce or even obviate the above stated problems.

[0005] This object is achieved with a beverage container according to the preamble, which beverage container further comprises:

- a sound sensor; and
- a control for controlling the lighting element on the basis of the sound measured with the sound sensor.

[0006] In the invention the lighting element is provided with a control which controls the lighting element on the basis of sound measured with the sound sensor. It has been found that such a control of the lighting element has a stimulating effect on the senses which differs essentially from and is improved relative to a beverage container with a lighting element.

[0007] The beverage container can be made of diverse materials, such as earthenware or cardboard, but is preferably made of a strong and transparent material such as transparent glass or plastic, such as preferably polycarbonate. Plastic has the advantage here that it is safer in use than glass. The beverage container is preferably at least partially and with strong preference wholly transparent, i.e. transparent between the surfaces on either side of the beverage container.

[0008] The lighting element can also comprise a plurality of individually controllable lighting elements. In addition to the lighting elements controlled on the basis of the sound sensor, further lighting elements can also be included. The lighting element or the (optionally further) lighting elements can optionally produce different colours of light. It is possible for some or all lighting elements, optionally controlled by the sound sensor, to emit light continuously (i.e. stationary light). In the case of a plurality

of lighting elements it is possible for some or all lighting elements, which are optionally controlled by the sound sensor, to be arranged at least partially in a row one behind the other, wherein firstly only a first lighting element of the lighting elements placed in a row one behind the other emits light, followed only by the subsequent second lighting element, followed thereafter by an optional third lighting element placed subsequently thereto, and so on (i.e. gliding light). The lighting elements can be controlled individually or in groups by the control.

[0009] The sound sensor and/or the control can here optionally be provided with speech recognition in order to recognize words in the measured sound and in order to switch on the lighting elements when determined words are detected.

[0010] The wall is in this case in particular also understood to mean an optional stem or foot (as known in wine or champagne glasses) or handle (as known in coffee cups) of the beverage container.

[0011] The beverage container can be provided with an engraving on the outer side of the beverage container, for instance in the case of a glass or plastic beverage container. One or more of the lighting elements and/or further lighting elements can be arranged in this engraving.

[0012] The beverage container can also be provided with a receptacle-like or annular element arranged on the bottom of the beverage container and provided with one or more of the optionally further lighting elements, which emit light from the element and upward through the beverage container so that it can be reflected in the beverage container, which is in that case preferably made of glass or transparent plastic, and for instance onto an engraving which may be present in the beverage container, or a print or sticker which is arranged on the beverage container.

[0013] In a first preferred embodiment of the beverage container according to the invention the bottom wall part is at least partially transparent, and the lighting element is arranged against the outer side of the transparent portion of the bottom wall part for the purpose of emitting light through the transparent portion.

[0014] The whole wall of the beverage container is preferably transparent here. In this preferred embodiment the beverage container is inexpensive to produce. The outer side of the bottom wall part moreover comes into contact relatively rarely with a beverage present in the beverage container, whereby the outer side of the bottom wall part is a particularly suitable location.

[0015] The lighting element is here preferably removable or releasable from the bottom wall part and is for instance clamped or fastened thereto, which makes it easier to clean the beverage container. The sound sensor and the power supply of the lighting element are for instance integrated into a unit together with the lighting element.

[0016] The bottom wall part can thus also be understood to mean an optional stem or foot or handle of the

beverage container.

[0017] In a second preferred embodiment of the beverage container according to the invention the wall comprises at the surface a transparent portion and a space inside which the lighting element extends is present in the wall, adjacent to the transparent wall portion.

[0018] Beverage containers are exposed to moisture, whereas lighting elements are usually not very well able to withstand moisture. For this reason it is recommended to arrange in the wall a closed space or cavity in which the lighting element is arranged. Because this space is adjacent to the transparent portion which reaches as far as the surface, the light coming from the lighting element is still visible.

[0019] Because these elements or this unit cannot be removed, it is important to select herein a battery with a suitable useful life, such as for instance 2 to 3 months.

[0020] It is here also the case that the wall can preferably be understood to mean the bottom wall part of the glass. The lighting element is then arranged in a closed space in the bottom of the glass. The transparent portion is in this case arranged relative to the lighting element such that the light is emitted upward through the glass. The sound sensor and the power supply of the lighting element are here also integrated into a unit, for instance together with the lighting element. The bottom wall part can here thus also be understood to mean an optional stem or foot or handle of the beverage container.

[0021] In a third preferred embodiment of the beverage container according to the invention the lighting element is arranged for emitting light through the transparent wall portion, transversely of the thickness of the wall.

[0022] The light from the lighting element is here guided through the transparent wall portion as it were just as in a glass fibre cable, wherein impurities in the transparent wall portion ensure that the light coming from the lighting element is visible on the outer side of the wall.

[0023] In a fourth preferred embodiment of the beverage container according to the invention the sound sensor and the control are arranged on or in the wall.

[0024] Although there is per se the option of providing the sound sensor and/or the control externally of the beverage container, and in that case remotely controlling the lighting element, for instance via communication means, it is preferred to accommodate the sound sensor and the control on or in the wall since this improves the reliability of detection.

[0025] In a fifth preferred embodiment of the beverage container according to the invention the lighting element is arranged on the wall.

[0026] When the lighting element is arranged on the wall, the light coming from the lighting element is always visible, also when the beverage container is made of a non-transparent material. Arranging can here be understood to mean both arranging in releasable manner and, instead, also fastening (for instance with adhesive). Arranging on the wall can be understood to mean both arranging on the outer side (where the beverage container

is generally held) and arranging on the inner side (where the beverage is stored).

[0027] In a sixth preferred embodiment of the beverage container according to the invention the beverage container further comprises a band which is arranged all around the peripheral wall part and is preferably releasable from the wall, wherein the lighting element is fastened to the band.

[0028] Arranging the lighting element on a band simplifies the production of the beverage container with the lighting element. Giving the band a releasable form has the advantage that the lighting element can be removed, for instance during cleaning of the beverage container, so as to prevent damage. It is also an option to fasten the band non-releasably to the beverage container. The band can for instance be made of plastic or metal.

[0029] In a seventh preferred embodiment of the beverage container according to the invention the beverage container further comprises communication means arranged in or on the beverage container and connected to the control for the purpose of connecting a server or a computer such as a mobile phone, such as a smart phone, to the beverage container.

[0030] By providing communication means in or on the beverage container it is possible to switch the lighting element on or off remotely, optionally independently of (i.e. in addition to) the continuous control on the basis of the sound sensor, optionally however in order to suspend the control on the basis of the sound sensor for a period of time. These communication means can for instance communicate via wireless protocols such as Bluetooth or Wi-Fi with for instance a suitable device such as a mobile phone, particularly a smart phone, or tablet computer, provided with software suitable for the purpose, such as an app which can be operated via the user interface on this device.

[0031] In an eighth preferred embodiment of the beverage container according to the invention the lighting element comprises a plurality of lighting elements arranged in the form of an alphanumeric combination or a matrix.

[0032] In this way it is possible to convey logos or textual messages by means of the beverage container. The beverage container can thus for instance be used in a gathering during which a sporting event is watched to detect when a point is scored, for instance on the basis of the volume of cheering, wherein the lighting element is in that case switched on (for instance in that the word "GOAL" or an equivalent thereof lights up).

[0033] In a ninth preferred embodiment of the beverage container according to the invention the beverage container comprises a power supply which can be charged wirelessly, for instance by means of inductive coupling.

[0034] To power the control and the lighting element it is known to provide them with a power supply. It is advantageous for this power supply to be accommodated in the beverage container and also to be wireless, so that

this power supply, such as a battery or accumulator, can be charged without connection via a wire, cable or connector being required herein. This is particularly advantageous because beverage containers are exposed to moisture, which may impede the use of wires, cables and/or connectors. Such batteries are known inter alia for charging electric toothbrushes.

[0035] In a tenth preferred embodiment of the beverage container according to the invention the outer surface of the wall is at least partially flat and the wireless power supply is arranged in the beverage container close to this flat portion of the wall.

[0036] A flat portion makes it easier to set the beverage container down. Accommodating the power supply in the vicinity of this flat portion enables the power supply to be charged when the beverage container has been set down. This flat portion is preferably or forms part of the bottom wall part of the wall.

[0037] The invention further relates to a method for controlling a beverage container according to the invention, comprising the steps of:

- providing a beverage container according to the invention;
- measuring sound with the sound sensor;
- switching on the lighting element with the control on the basis of the measured sound.

[0038] Switching on the lighting element with the control achieves an increased stimulation of the senses of the user and/or people in the area surrounding the beverage container.

[0039] In a first preferred embodiment of the method according to the invention the step of switching on the lighting element with the control on the basis of the measured sound comprises the steps of:

- comparing the measured sound to a threshold value with the control; and
- switching on the lighting element with the control for at least a preset period of time and/or in accordance with a preset pattern when the threshold value is exceeded.

[0040] By comparing the sound to a threshold value the lighting element can switch on in the case of a sound with a differing (generally higher) intensity level (for instance in dB). Switching on can be understood to mean blinking.

[0041] In a second preferred embodiment of the method according to the invention the step of measuring sound with the sound sensor comprises the step of measuring the change in the sound intensity in relation to the time, and the step of comparing the measured sound to a threshold value with the control comprises the step of comparing the change in the sound intensity in relation to the time to a threshold value with the control.

[0042] Measuring the change in the sound intensity (or

the sound level) in relation to the time makes it possible to switch on the lighting element in the case of sudden variations in the measured sound intensity. In places where large groups are gathered, such as places of entertainment or screenings of sporting events, the sound intensity per se can already have a relatively high level, wherein it will be particularly stimulating to the senses if only substantial variations from this high level result in switching on of the lighting element.

[0043] In a third preferred embodiment of the method according to the invention the measuring of sound with the sound sensor comprises the step of measuring the sound frequency distribution, and the step of switching on the lighting element with the control on the basis of the measured sound comprises the step of switching on the lighting element on the basis of the measured sound frequency distribution.

[0044] In this way it is possible to have the lighting react to sound in a specific frequency range. It is for instance possible to switch on the lighting elements on the basis of low tones in music, such as bass notes, which have a frequency of between 20 and 600 Hz. In this way the light can as it were 'dance' on the basis of the rhythm of the music, which increases the stimulating effect on the senses.

[0045] These and other features of the invention are further elucidated with reference to the accompanying drawings.

Figure 1 shows a perspective view of a glass according to the invention.

Figure 2 shows a cross-section of a beverage container according to the invention.

Figure 3 shows a cross-section of a beverage container according to the invention.

Figure 4 shows a portion of a wall of a beverage container according to the invention.

Figure 5 shows the measured sound level and the change thereof in relation to the time.

Figure 6 shows a cross-section of a beverage container according to the invention.

Figure 7 shows a cross-section of the lower side of a champagne glass according to the invention.

[0046] Figure 1 shows a glass 1. Glass 1 has a base 2 with a stem 3 attached thereto, and a peripheral wall 5 formed all around a reservoir 4. Lighting elements 6, which are controlled by a control (not shown) and which are powered by a wirelessly chargeable power supply 7 arranged in base 2, are arranged on peripheral wall 5 on the outer side.

[0047] Figure 2 shows a glass 20. Glass 20 comprises a bottom 21 with a peripheral wall 22. Arranged in the transparent left-hand wall part 22a is a closed space 23 with therein a light source (not shown) which can emit light through left-hand wall part 22a. In the right-hand wall part 22b only the outer layer 22b is transparent, whereas the layer 25 facing toward reservoir 24 is not

transparent. A space 26 for accommodating a light source (not shown) is also formed here. A battery 27 for powering the light sources is accommodated in bottom 21.

[0048] Figure 3 shows a cup 40 with a bottom 41 and peripheral wall 42. An elastic band 43, which can be removed from cup 40, is arranged all around peripheral wall 42. Fastened in the band is a lighting element 44, which is therefore also removable from cup 40 owing to the fastening to band 43.

[0049] Figure 4 shows a wall part 50 with a light source 51 arranged therein. The light coming from light source 51 radiates through wall part 50 as according to line 52 and wall part 50 is therefore a light conductor.

[0050] Figure 5 shows the sound level 60 and the change 61 of this sound level in relation to the time. Although an increase of the sound level occurs during the whole depicted period, the speed thereof increases from tx, whereby it exceeds a threshold value 62, whereby the light source can be switched on.

[0051] Figure 6 shows a further beverage container 70. This beverage container 70 comprises a bottom wall part 71 and a peripheral wall part 72. A beverage 75 is stored on the inner side of beverage container 70. At least a portion of bottom wall part 71 of beverage container 70, which is for instance made of polycarbonate, is transparent. A unit 73 arranged against the outer side of bottom wall part 71 and having therein a lighting element, the sound sensor and the power supply can in this way emit light through the beverage container. Unit 73 is preferably releasable from beverage container 70, for instance in that it is clamped in recess 74 of beverage container 70. The main dimension, such as the diameter of beverage container d1, is preferably smaller than the equivalent main dimension of recess 74 d2, making it easy to emit light through peripheral wall part 72.

[0052] Figure 7 shows a champagne glass 80 with a stem 81, a foot 82 and a peripheral wall 83. Unit 84 is here arranged in a closed space in a closed compartment under the bottom 85 of storage compartment 86, this unit 84 comprising a lighting element which shines light through the transparent bottom 85 of glass 80.

Claims

1. Beverage container, comprising:

- a wall, comprising a bottom wall part and a peripheral wall part standing upright from the bottom; and
- a lighting element arranged on or in the wall **characterized by**
- a sound sensor; and
- a control for controlling the lighting element on the basis of the sound measured with the sound sensor.

2. Beverage container as claimed in claim 1, wherein the bottom wall part is at least partially transparent and wherein the lighting element is arranged against the outer side of the transparent portion of the bottom wall part for the purpose of emitting light through the transparent portion.
3. Beverage container as claimed in claim 1 or 2, wherein the wall comprises at the surface a transparent portion and wherein a space inside which the lighting element extends is formed in the wall, adjacent to the transparent wall portion.
4. Beverage container as claimed in claim 3, wherein the lighting element is arranged for emitting light through the transparent wall portion, transversely of the thickness of the wall.
5. Beverage container as claimed in any one of the foregoing claims, wherein the sound sensor and the control are arranged on or in the wall.
6. Beverage container as claimed in any one of the foregoing claims, wherein the lighting element is arranged on the wall.
7. Beverage container as claimed in claim 6, further comprising a band which is arranged all around the peripheral wall part and is preferably releasable from the wall, wherein the lighting element is fastened to the band.
8. Beverage container as claimed in any one of the foregoing claims, further comprising communication means arranged in or on the beverage container and connected to the control for the purpose of connecting a server or a computer such as a mobile phone, such as a smart phone, to the beverage container.
9. Beverage container as claimed in any one of the foregoing claims, wherein the lighting element comprises a plurality of lighting elements arranged in the form of an alphanumeric combination or a matrix.
10. Beverage container as claimed in any one of the foregoing claims, further comprising a power supply which can be charged wirelessly, for instance by means of inductive coupling.
11. Beverage container as claimed in claim 10, wherein the outer surface of the wall is at least partially flat and wherein the wireless power supply is arranged in the beverage container close to this flat portion of the wall.
12. Method for controlling a beverage container as claimed in any one of the foregoing claims, comprising the steps of:

- providing a beverage container as claimed in any one of the foregoing claims;
- measuring sound with the sound sensor; and
- switching on the lighting element with the control on the basis of the measured sound.

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13. Method as claimed in claim 12, wherein the step of switching on the lighting element with the control on the basis of the measured sound comprises the steps of:

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- comparing the measured sound to a threshold value with the control; and
- switching on the lighting element with the control for at least a preset period of time and/or in accordance with a preset pattern when the threshold value is exceeded.

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14. Method as claimed in claim 13, wherein the step of measuring sound with the sound sensor comprises the step of measuring the change in the sound intensity in relation to the time, and wherein the step of comparing the measured sound to a threshold value with the control comprises the step of comparing the change in the sound intensity in relation to the time to a threshold value with the control.

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15. Method as claimed in any one of the claims 12-14, wherein the measuring of sound with the sound sensor comprises the step of measuring the sound frequency distribution, and wherein the step of switching on the lighting element with the control on the basis of the measured sound comprises the step of switching on the lighting element on the basis of the measured sound frequency distribution.

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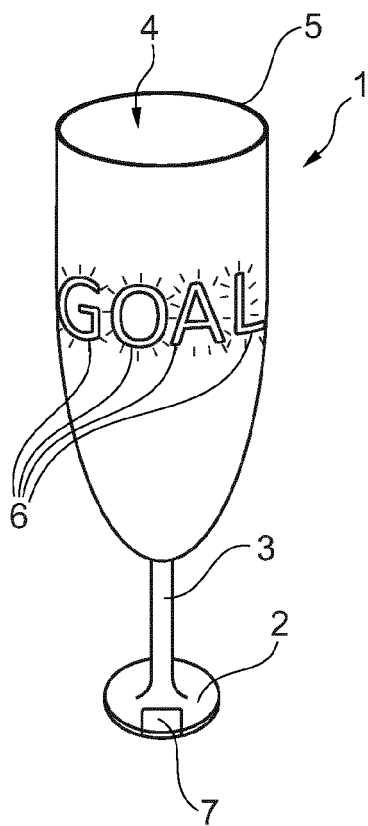


Fig. 1

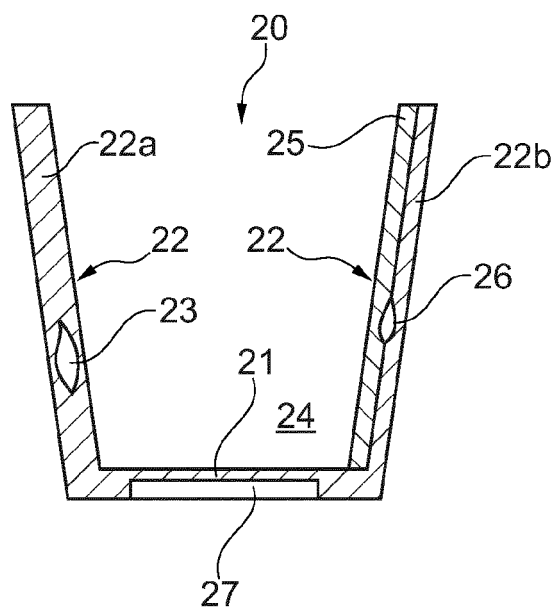


Fig. 2

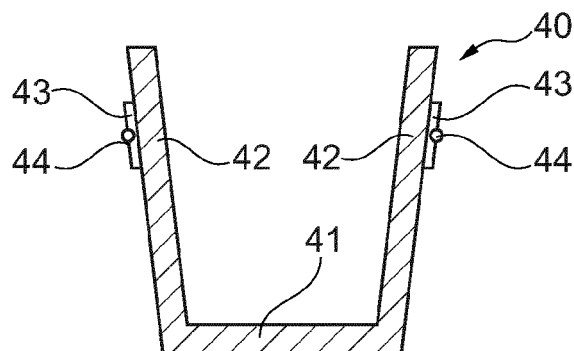


Fig. 3

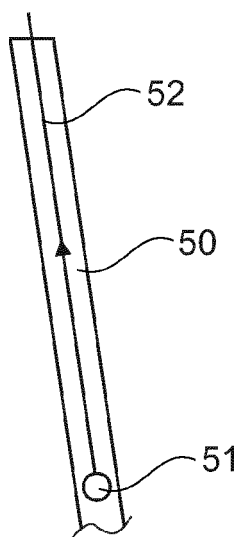


Fig. 4

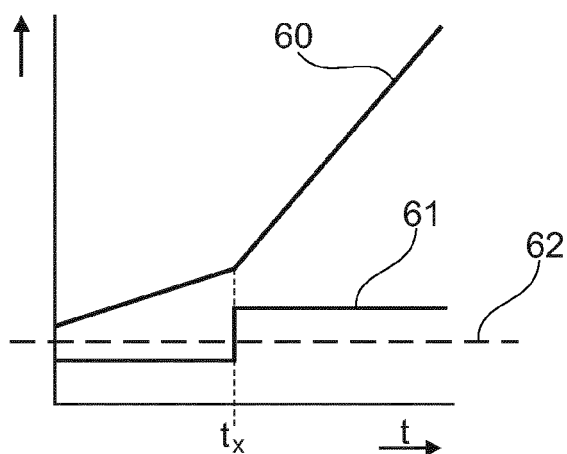


Fig. 5

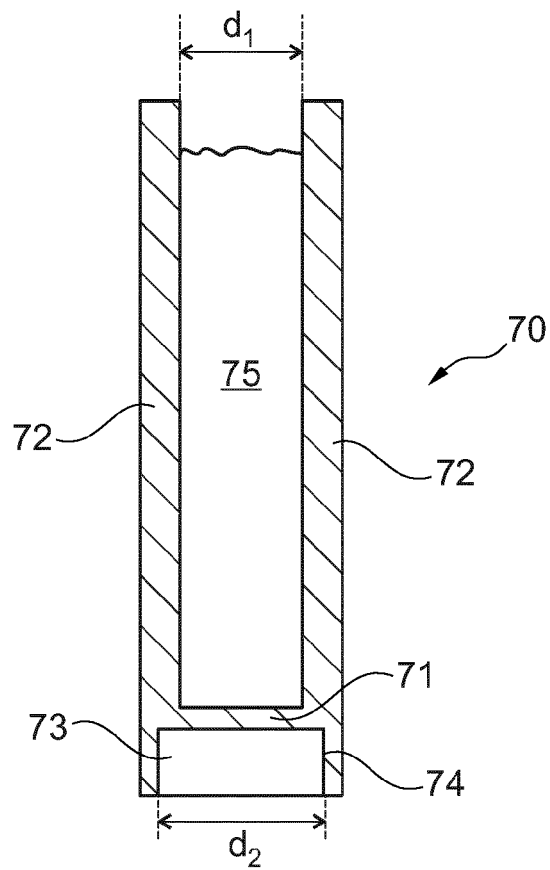


Fig. 6

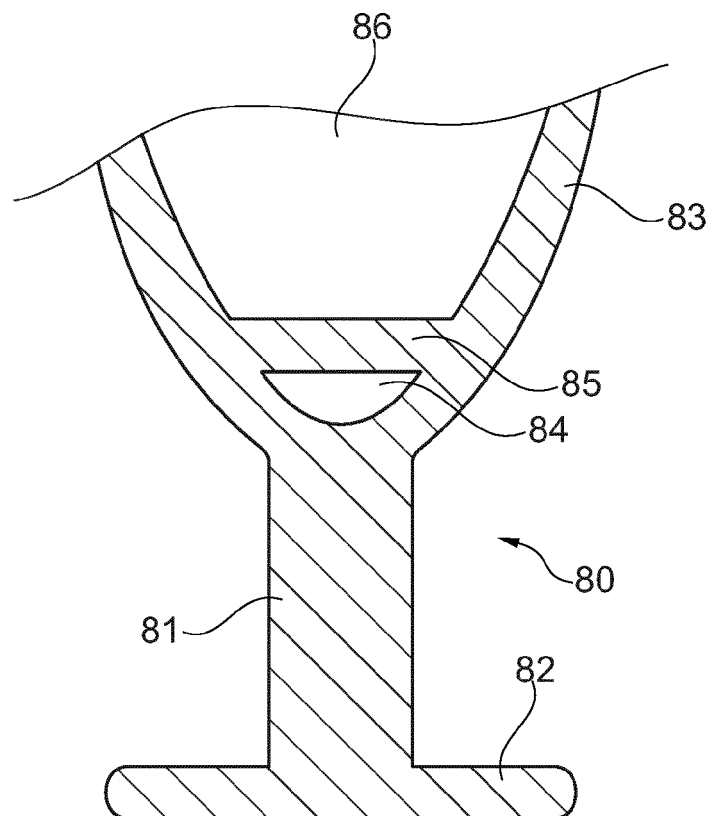


Fig. 7



EUROPEAN SEARCH REPORT

Application Number
EP 18 18 7100

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 575 553 A (TIPTON TOMMY B [US]) 19 November 1996 (1996-11-19) * column 4, line 3 - column 7, line 63; figures *	1-15	INV. A47G19/22
X	WO 2016/193480 A1 (GLOWSTONE LTD [GB]) 8 December 2016 (2016-12-08) * page 7, line 28 - page 11, line 29; figures *	1-15	
X	WO 2016/115723 A1 (INTEL CORP [US]) 28 July 2016 (2016-07-28) * paragraph [0017] - paragraph [0065]; figures *	1-15	
X	CN 105 595 747 A (NANJING INST INDUSTRY TECH) 25 May 2016 (2016-05-25) * the whole document *	1-7,9, 12-15	
X	CN 205 457 793 U (GUANGHUI TECH DEV CO LTD) 17 August 2016 (2016-08-17) * the whole document *	1-7,9, 12-15	TECHNICAL FIELDS SEARCHED (IPC)
X	CN 201 948 606 U (JIANPENG WANG) 31 August 2011 (2011-08-31) * the whole document *	1-6,9, 12-15	A47G F21V
X	KR 2003 0038613 A (KANG JIN [KR]) 16 May 2003 (2003-05-16) * the whole document *	1-6, 12-15	
X	US 2017/099968 A1 (KRAMER JAMES F [US]) 13 April 2017 (2017-04-13) * paragraph [0078]; figures 10,17,37 * * paragraph [0093] * * paragraph [0097] * * paragraph [0113] * * paragraph [0130] - paragraph [0134] * ----- -/--	1-15	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 January 2019	Examiner Vistisen, Lars
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

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EUROPEAN SEARCH REPORT

Application Number
EP 18 18 7100

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2012/127699 A1 (CHANG KUO-CHENG [TW]) 24 May 2012 (2012-05-24) * paragraph [0009] - paragraph [0013]; figures *	7	
A	----- US 2007/171627 A1 (HSU WAN-CHANG [TW]) 26 July 2007 (2007-07-26) * paragraph [0028] - paragraph [0033]; figures *	10,11	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 January 2019	Examiner Vistisen, Lars
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 18 7100

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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35

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50

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5575553 A	19-11-1996	AU 3716695 A US 5575553 A WO 9701062 A1	22-01-1997 19-11-1996 09-01-1997
WO 2016193480 A1	08-12-2016	CN 108471903 A EP 3302190 A1 GB 2556514 A US 2018153342 A1 WO 2016193480 A1	31-08-2018 11-04-2018 30-05-2018 07-06-2018 08-12-2016
WO 2016115723 A1	28-07-2016	US 2017347818 A1 WO 2016115723 A1	07-12-2017 28-07-2016
CN 105595747 A	25-05-2016	NONE	
CN 205457793 U	17-08-2016	NONE	
CN 201948606 U	31-08-2011	NONE	
KR 20030038613 A	16-05-2003	NONE	
US 2017099968 A1	13-04-2017	CA 2584199 A1 CN 101128861 A CN 104083048 A EP 1811879 A2 JP 5523672 B2 JP 6200823 B2 JP 2008517645 A JP 2014121624 A US 2006087831 A1 US 2008019122 A1 US 2014317934 A1 US 2017099968 A1 US 2017332845 A1 WO 2006043255 A2	27-04-2006 20-02-2008 08-10-2014 01-08-2007 18-06-2014 20-09-2017 29-05-2008 03-07-2014 27-04-2006 24-01-2008 30-10-2014 13-04-2017 23-11-2017 27-04-2006
US 2012127699 A1	24-05-2012	TW 201221093 A US 2012127699 A1	01-06-2012 24-05-2012
US 2007171627 A1	26-07-2007	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82