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(54) **Lid for a container**

Deckel für einen Behälter

Fermeture de récipient

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## Description

**[0001]** The invention concerns a lid for a container, in particular a liquid container. Such lids are used specifically in the containers forming part of water filtering devices that are filled with tap water through an opening located in the lid.

**[0002]** Many types of containers are known having suitable lids. Such lids are removable and they are usually provided with an opening through which tap water can be poured into the container. The opening is often equipped with closure elements of various types, in particular the closure elements enable automatic closing of the opening when the water is not poured down on the lid and they are opened when a stream of water runs on them.

**[0003]** Such lids are described e.g. in the patent applications WO 00/55099 and WO 05/092155 and in the patent EP1727449. According to these solutions, the lid opening is equipped with a closure element mounted on the lid so as to be pivotable about an axis, the closure yielding to a running stream of liquid and opening the inlet, then retreating to its initial closing equilibrium position by means of various mechanisms when the stream stops running.

**[0004]** In the devices according to WO 05/092155 and EP1727449 e.g. a gravity counterweight is used, located on the opposite side of the axis in relation to the closure element. The suitable weight of the counterweight causes it to sink when the closure element, not loaded with the stream of the liquid, goes up. A disadvantage of these devices resides in the monolithic construction of the closure element and its counterweight, both elements constituting one piece. Consequently, use different counterweights, depending e.g. on the size of the opening and hence the type and weight of the closure element, is not possible.

**[0005]** The aim of the invention is to simplify the production process of the containers having various openings by providing a container lid capable of being equipped with various closure elements, the counterweight being mounted independently and chosen depending on the weight of the closure element of a desired container/lid.

**[0006]** According to the invention a lid for a container is provided, in particular a liquid container, comprising an opening for filling the container with its contents from above, the opening being closable by means of a pivotable closure element mounted on the inner side of the lid so as to be rotatable about a first axis, the first axis being horizontal when the lid is located on top of the container, the closure element comprising a part for closing the top opening of the container, the part being located on one side of the first axis, and a part constituting a counterweight of the part on the other side of the first axis, **characterized in that** a pivotable bias element is provided between the closure element and the lid, the bias element falling by gravity on the counterweight part

and causing that the closing part is being pressed to the opening.

**[0007]** Preferably, the pivotable bias element is mounted on the inner side of the lid, rotatably on a second axis which is parallel to the first axis.

**[0008]** The second axis on which the pivotable bias element is mounted and the first axis on which the pivotable closure element is mounted, are preferably mounted on mutual arms in which the endings of both axes are rotatably fitted, the arms extending from the inner side of the lid.

**[0009]** The pivotable bias element may have a shape of a flap, preferably a rectangular flap.

**[0010]** In another embodiment, the pivotable bias element may have a shape of a frame, preferably a rectangular frame.

**[0011]** In yet another embodiment, the pivotable bias element has a shape of a bar, preferably a bar provided with a ballast ending.

**[0012]** The lid preferably comprises means for registering each deviation of the closure element from its equilibrium.

**[0013]** The registering means preferably cooperate with the counterweight part.

**[0014]** The registering means may be formed by an electronic meter provided with a display which is visible from outside on the lid.

**[0015]** The lid may have a shape adapted to the contour of the top part of the container and/or may comprise a longitudinal projection to be located above the spout for dispensing the liquid from the container.

**[0016]** Preferably, the opening is rounded or oval and the closing part of the closure element has a shape adapted to the opening.

**[0017]** An example of embodiment of the invention is illustrated in the following drawing in which: fig. 1a shows a longitudinal section of the lid with the closure element in its closing position; fig. 1b shows a partial top view of the lid with the closure element in its closing position; fig. 2a shows a longitudinal section of the lid with the closure element in its open position, with a stream of liquid, e.g. water, running onto it; fig. 2b shows a partial top view of the lid with the closure element in its open position; fig. 3a, 3b and 3c show variants of shapes of the bias element; fig. 4 shows a top view of the lid having a rounded opening.

**[0018]** As may be seen in figs. 1b, 2b of the drawing, the exemplary lid 1 according to the invention has a generally oval shape as seen from above, the shape being adapted to the shape of the top rim of the container. The shape of the opening 2 may be oval or be rounded, as shown on fig. 4. A projection 11 covering a dispensing spout is located on one side of the lid (e.g. as seen along the longer axis of the oval), the oval shape of the lid being lightly sharpened on the opposite side so as to follow the shape of the lid in its handle area.

**[0019]** As shown on figs. 1a, 2a the lid is slightly convex. The opening 2 is located in the central part of the

lid, and a liquid, usually tap water, may be poured into the container through the opening 2. Specifically, the container having a lid according to the invention may be used as a container of a flow water filtering device. The opening 2 is provided with a pivotable closure element 3, rotatably mounted on an axis X.

**[0020]** The closure element 3 comprises a part 4 for closing the opening of the container, the part 4 being located on one side of the axis X, and a part 5 located on the opposite side of the axis X, constituting a counterweight for the part 4. When no liquid is running into the opening so that no force is being exerted on the closing part 4, the closing part is not loaded and remains in its equilibrium, slightly raised and closing the opening 2 by contacting its edge. On the other side, the counterweight 5 is slightly sunk.

**[0021]** The sinking of the counterweight 5 is caused by the action of the bias element 6 falling on it by gravity. The bias element 6 is balanced so as to softly but efficiently bring the closing part 4 into contact with the edge of the opening 2 when no liquid is falling onto the lid, and to easily pivot in order to open the inlet as soon as a liquid stream appears.

**[0022]** The weight of the bias element 6 must be adapted to the weight or the size of the closing part, which in turn depends on the size of the opening. Considering the above, separate installation of the closing parts and the bias elements is technologically convenient.

**[0023]** Figs. 3a, 3b and 3c show the variants of shapes of the bias element that may be a rectangular flap 6 as well as e.g. a rectangular frame 6', or a bar 6'', preferably a bar 6'' provided with a ballast ending 6'''.

**[0024]** As shown in particular in figs. 1a and 1b, the pivotable bias element 6 is rotatably mounted to the lid 1 on the axis Y which is parallel to the axis X. In the described example the axis Y on which the pivotable bias element 6 is mounted and the axis Y on which the pivotable closure element is mounted, are mounted on mutual arms 7 in which the endings of both axes are rotatably fitted, the arms extending on the inner side of the lid and both axes being parallel.

**[0025]** Registering means 8, e.g. in the form of an electronic meter, may be located on the lid, e.g. in a special depression. The means 8 may register each deviation of the closure element 3 from its equilibrium. The meter may be associated by any suitable means with e.g. the counterweight part 5. The registering means 8 may be located on the container lid, on its inner or outer side and may be equipped with a display visible from the outside of the lid. Upon suitable adjustment, the registering means may serve as a consumption meter for the water filtering element.

## Claims

1. Lid for a container, in particular a liquid container, comprising an opening (2) for filling the container

with its contents from above, the opening being closable by means of a pivotable closure element (3) mounted on the inner side of the lid so as to be rotatable about a first axis (X), the axis (X) being horizontal when the lid is located on top of the container, the closure element (3) comprising a part (4) for closing the top opening of the container, the part (4) being located on one side of the axis (X), and a part constituting a counterweight (5) of the part (4) on the other side of the axis (X), **characterized in that** a pivotable bias element (6) is provided between the closure element (3) and the lid (1), the bias element (6) falling by gravity on the counterweight part (5) and causing that the closing part (4) is being pressed to the opening (2).

2. Lid according to claim 1, **characterized in that** the pivotable bias element (6) is mounted on the inner side of the lid (1), rotatably on a second axis (Y) which is parallel to the first axis (X).

3. Lid according to claim 1, **characterized in that** the second axis (Y) on which the pivotable bias element (6) is mounted and the first axis (Y) on which the pivotable closure element (3) is mounted, are mounted on mutual arms (7) in which the endings of both axes are rotatably fitted, the arms (7) extending from the inner side of the lid (1).

4. Lid according to claim 1 or 2 or 3, **characterized in that** the pivotable bias element (6) has a shape of a flap, preferably a rectangular flap.

5. Lid according to claim 1 or 2 or 3, **characterized in that** the pivotable bias element (6) has a shape of a frame, preferably a rectangular frame.

6. Lid according to claim 1 or 2 or 3, **characterized in that** the pivotable bias element (6) has a shape of a bar, preferably a bar provided with a ballast ending (6''').

7. Lid according to claim 1, **characterized in that** it comprises means (8) for registering each deviation of the closure element (3) from its equilibrium.

8. Lid according to claim 7, **characterized in that** the registering means (8) cooperate with the counterweight part(5).

9. Lid according to claim 7, **characterized in that** the registering means (8) are formed by an electronic meter provided with a display which is visible from outside on the lid.

10. Lid according to claim 1, **characterized in that** it has a shape adapted to the contour of the top part of the container (10) and comprises a longitudinal projec-

tion (11) to be located above the spout for dispensing the liquid from the container.

11. Lid according to claim 1, **characterized in that** the opening (2) is rounded or oval and the closing part (4) of the closure element (3) has a shape adapted to the opening (2).

#### Patentansprüche

1. Der Deckel des Behälters, insbesondere des Flüssigkeitsbehälters, der eine Öffnung (2) zum Befüllen des Behälters mit dem Inhalt von oben enthält, wobei die Öffnung mit einem Drehverschlusselement(3)geschlossen wird, das auf der Innenseite des Deckels so installiert wird, dass es um die erste Achse (X) drehbar wird und die Achse (X) ist waagrecht, wenn sich der Deckel auf dem Behälter befindet, wobei das Drehverschlusselement(3)einen Teil(4)zum Verschließen der oberen Öffnung des Behälters enthält, wobei sich der Teil(4) auf der einen Seite der Achse(X)und der Teil, der als Ausgleich(5) zum Teil(4)gilt, auf der anderen Seite der Achse(X)befindet, **dadurch gekennzeichnet, dass** das Drehelement der Belastung(6)zwischen dem Verschlusselement (3) und dem Deckel (1) vorgesehen ist, wobei das Belastungselement (6) durch die Schwerkraft auf den Teil des Ausgleichs fällt, wodurch der Verschlusssteil (4) an die Öffnung (2) gedrückt wird.
2. Der Deckel nach Anspruch 1, **dadurch gekennzeichnet, dass**, das Drehelement der Belastung (6)auf der Innenseite des Deckels (1), drehbar an der zweiten Achse (Y), die zu der ersten Achse (X) parallel verläuft, angebracht ist.
3. Der Deckel nach Anspruch 1, **dadurch gekennzeichnet, dass** die zweite Achse(Y), an der das Drehelement der Belastung(6)angebracht ist und die erste Achse(Y), an der der Drehverschlusselement(3) angebracht ist, an gemeinsamen Armen(7)installiert werden, in die die Endungen der beiden Achsen drehbar angepasst werden, wobei sich die Arme (7) von der Innenseite des Deckels (1) strecken.
4. Der Deckel nach Anspruch 1 oder 2 oder 3, **dadurch gekennzeichnet, dass** das Drehelement der Belastung (6) die Form einer Klappe, vorzugsweise einer rechteckigen Klappe hat.
5. Der Deckel nach Anspruch 1 oder 2 oder 3, **dadurch gekennzeichnet, dass** das Drehelement der Belastung (6) die Form eines Rahmens, vorzugsweise eines rechteckigen Rahmens hat.

6. Der Deckel nach Anspruch 1 oder 2 oder 3, **dadurch gekennzeichnet, dass** das Drehelement der Belastung (6) die Form einer Stange hat, günstigerweise einer Stange, die mit einem Ballast Endstück (6'') ausgestattet ist.
7. Der Deckel nach Anspruch no.1, **dadurch gekennzeichnet, dass** er Mittel (8) zum Registrieren einer jeden Abweichung des Verschlusselements (3) von seinem Gleichgewicht, enthält.
8. Der Deckel nach Anspruch 7, **dadurch gekennzeichnet, dass** die Registriermittel(8)mit dem Ausgleichsteil(5)zusammenarbeiten.
9. Der Deckel nach Anspruch 7, **dadurch gekennzeichnet, dass** die Registriermittel(8)durch ein elektronisches Messgerät gebildet sind, das mit einer, auf der Außenseite des Deckels sichtbaren Anzeige, ausgestattet wird.
10. Der Deckel nach Anspruch 7, **dadurch gekennzeichnet, dass** er eine Form hat, die an den Umriss des Oberteils des Behälters (10) angepasst ist, und einen länglichen Vorsprung (11) enthält, der sich über dem Auslauf zur Abgabe von Flüssigkeit aus dem Behälter, zu befinden hat.
11. Der Deckel nach Anspruch 7, **dadurch gekennzeichnet, dass** die Öffnung (2) abgerundet oder oval ist und der Verschlusssteil (4) des Verschlusselements (3) eine an die Öffnung (2) angepasste Form hat.

#### Revendications

1. Couvercle pour un récipient, en particulier un récipient de liquide, comprenant une ouverture (2) pour remplir le récipient avec son contenu à partir de dessus, l'ouverture pouvant être fermée au moyen d'un élément de fermeture pivotant (3) monté sur le côté interne du couvercle de manière à pouvoir tourner autour d'un premier axe (X), l'axe (X) étant horizontal lorsque le couvercle est situé sur le dessus du récipient, l'élément de fermeture (3) comprenant une partie (4) pour fermer l'ouverture supérieure du récipient, la partie (4) étant située sur un côté de l'axe (X), et une partie constituant un contrepoids (5) de la partie (4) sur l'autre côté de l'axe (X), **caractérisé en ce qu'**un élément de biais pivotant (6) est prévu entre l'élément de fermeture (3) et le couvercle (1), l'élément de biais (6) tombant par gravité sur la partie de contrepoids (5) et faisant que la partie de fermeture (4) est pressée vers l'ouverture (2).
2. Couvercle selon la revendication 1, **caractérisé en ce que** l'élément de biais pivotant (6) est monté sur le côté interne du couvercle (1), de façon rotative sur

un second axe (Y) qui est parallèle au premier axe (X).

3. Couvercle selon la revendication 1, **caractérisé en ce que** le second axe (Y) sur lequel l'élément de biais pivotant (6) est monté, et le premier axe (X) sur lequel l'élément de fermeture pivotant (3) est monté, sont montés sur des bras mutuels (7) dans lesquels les fins des deux axes sont montées de façon rotative, les bras (7) étendant à partir du côté interne du couvercle (1). 5  
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4. Couvercle selon la revendication 1 ou 2, ou 3, **caractérisé en ce que** l'élément de biais pivotant (6) a une forme d'un rabat, de préférence un rabat rectangulaire. 15
5. Couvercle selon la revendication 1 ou 2, ou 3, **caractérisé en ce que** l'élément de biais pivotant (6) a une forme d'un cadre, de préférence un cadre rectangulaire. 20
6. Couvercle selon la revendication 1 ou 2, ou 3, **caractérisé en ce que** l'élément de biais pivotant (6) a une forme d'une barre, de préférence une barre munie d'une fin de ballast (6'''). 25
7. Couvercle selon la revendication 1, **caractérisé en ce qu'il** comprend des moyens (8) pour enregistrer chaque déviation de l'élément de fermeture (3) de son équilibre. 30
8. Couvercle selon la revendication 7, **caractérisé en ce que** les moyens d'enregistrement (8) coopèrent avec la partie de contreponds (5). 35
9. Couvercle selon la revendication 7, **caractérisé en ce que** les moyens d'enregistrement (8) sont constitués par un compteur électronique avec un écran qui est visible de l'extérieur sur le couvercle. 40
10. Couvercle selon la revendication 1, **caractérisé en ce qu'il** a une forme adaptée au contour de la partie supérieure du récipient (10) et comprend une projection longitudinale (11) à se trouver au-dessus du bec pour distribuer le liquide depuis le récipient. 45
11. Couvercle selon la revendication 1, **caractérisé en ce que** l'ouverture (2) est arrondie ou ovale et la partie de fermeture (4) de l'élément de fermeture (3) a une forme adaptée à l'ouverture (2). 50

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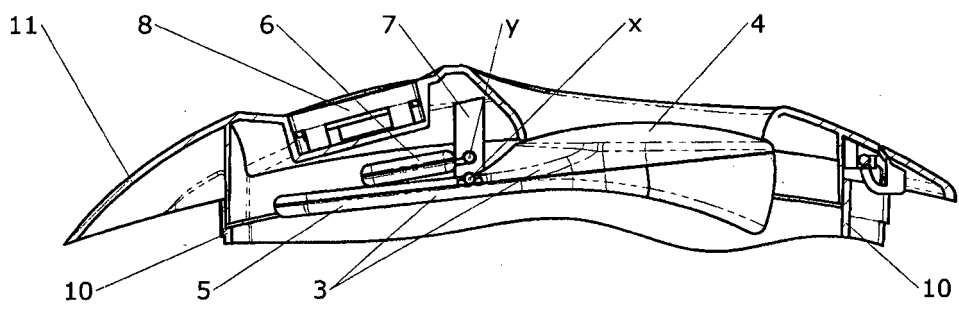


Fig. 1a

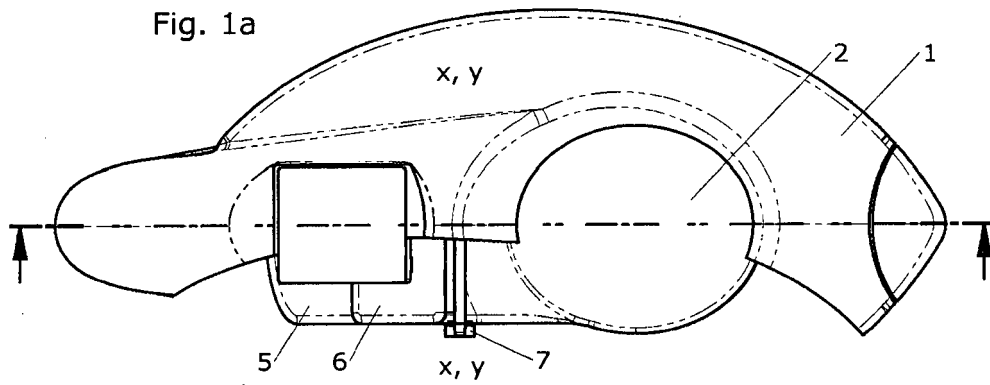


Fig. 1b

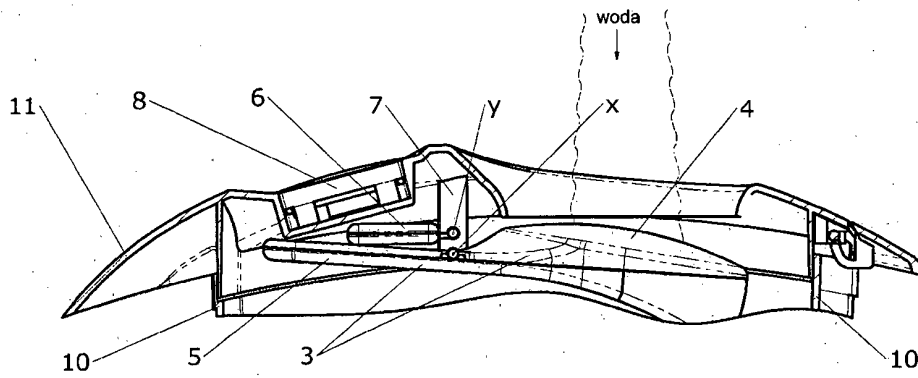


Fig. 2a

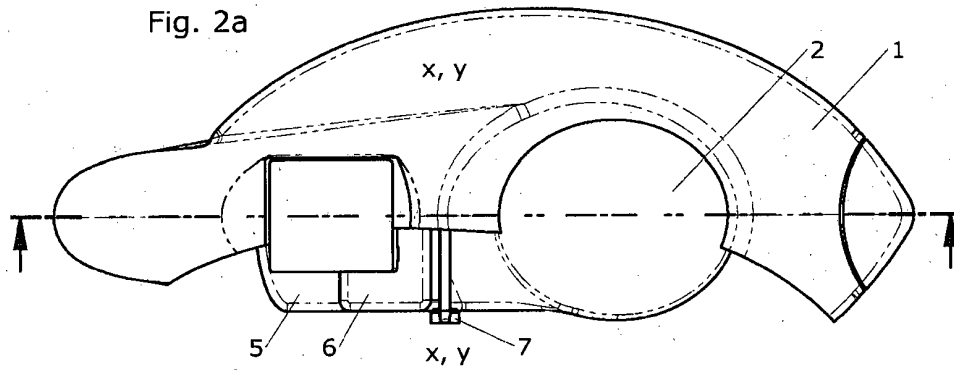


Fig. 2b

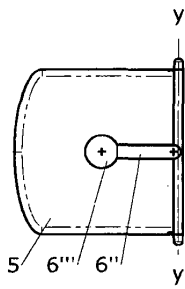


Fig. 3b

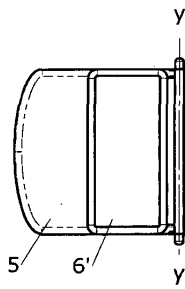


Fig. 3a

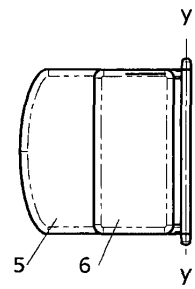


Fig. 3c



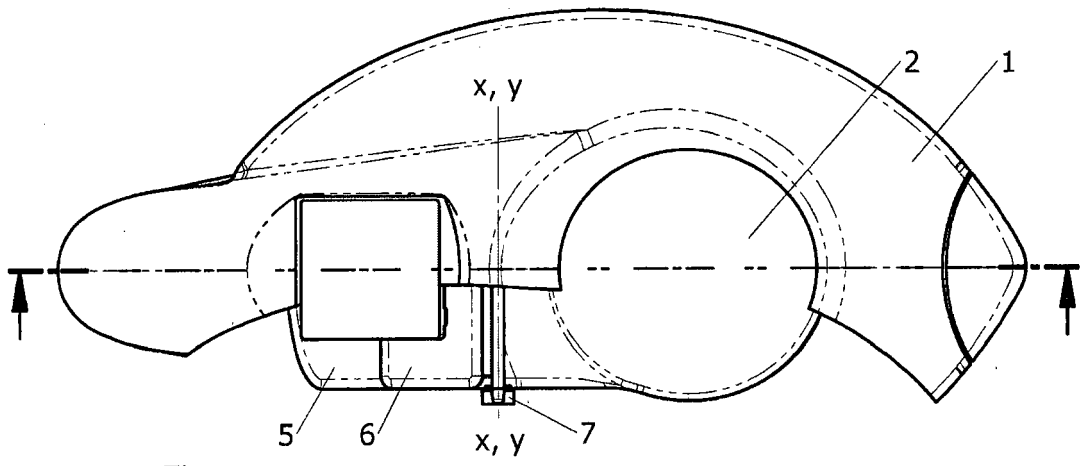


Fig 4

**REFERENCES CITED IN THE DESCRIPTION**

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